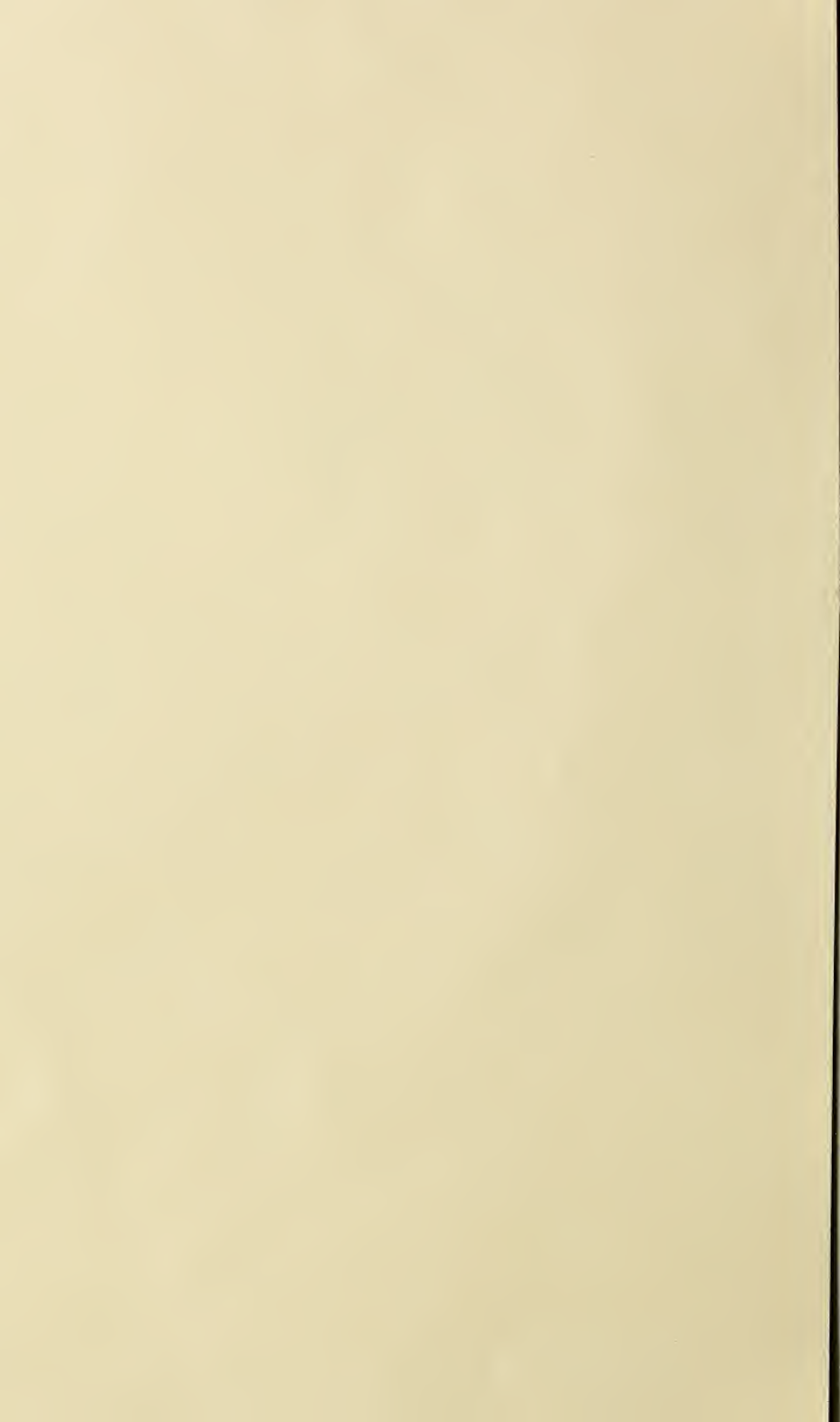


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Cleanings in Bee Culture



Who's Afraid?

Photographed by Dr. E. F. Bigelow.

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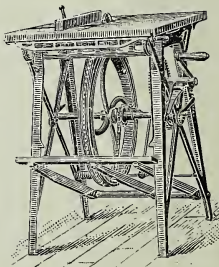
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Gleanings in Bee Culture

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NO. 11

EDITORIALS

THE first car of bees from Virginia this season arrived May 21. Notwithstanding a large percentage of the colonies were strong, they all arrived in most excellent condition. It is the best shipment, in point of quality and quantity, we ever received. There will be one more car from Texas, and another from Virginia.

Failure of the Tupelo Crop of Honey in Northern Florida

WE have received a letter from A. B. Marchant at Sumatra, Florida, stating that the tupelo that is usually regarded as a dependable crop year in and year out was a complete failure. A heavy storm lasting six days entirely destroyed the bloom.

Bumblebees Wanted

DR. BURTON N. GATES, of the Massachusetts Agricultural College, desires to get a number of specimens of bumblebees that have been caught in the act of entering a hive or that are found about hives. The purpose of this is to enable one of his students to make a study of the behavior of bumblebees in relation to hives. All who have observed bumblebees, or what looks like them, about hives, would be conferring a favor on Dr. Gates if they would send him a specimen carefully packed in cotton, and shipped in a small box, together with a letter giving some information as to where the bumblebee was found—and name and address of the sender.

A Honey Journal

THE former secretary of the National, Mr. Geo. W. Williams, of Redkey, Ind., recognizing that honey has not received its fair share of attention on the part of the consuming public, and with the view of pushing its sale, is about to publish a new

bee paper entitled *The Booster*. Mr. Williams will confine himself to the matter of finding a market for honey; and, as the name of his paper indicates, boosting prices. There is a large and important field here, and we wish our new paper success.

Sixty lbs. Net of Honey in Square Cans

Now that the season is close at hand for putting up extracted honey, we believe the following from one of our correspondents will be very timely:

There has always been a good deal of controversy as to the tare on cans and cases; and if dealers get in the habit of packing 60 lbs. net, this question will be eliminated, and will greatly simplify matters. Another thing, the buying trade now are expecting to have the goods packed in this way; and if it is packed overweight, they do not want to pay for the extra weight.

A Correction

BY mistake we credited the very fine picture appearing on our cover for May 1st to Dr. Bigelow, whereas it was sent us by Alexander B. Stevenson, of Edmonds, B. C. The following characteristic letter from Dr. Bigelow, in which he generously explains that the honor is not his, was our first intimation that we had made a mistake. We beg Mr. Stevenson's pardon for giving the credit to some one else.

Some people achieve honors, and others have them thrust upon them. I am in the second class regarding the photograph that appears upon the front cover of your magazine for May 1st. I believe that is the first front cover that has ever borne my name, although your front cover has carried several of my photographs. But here is the unfortunate situation: That is not my photograph.

EDWARD F. BIGELOW.

Arcadia, Sound Beach, Ct., May 8.

When Mr. Stevenson sent the photograph he wrote that his bees are all hybrids, but that he often works with them without wearing a veil. Hybrids certainly have the

reputation of being very vicious, but some hybrids are as gentle as any pure Italians.

Our cover for this issue is the picture sent us by Dr. Bigelow which is referred to above. Dr. Bigelow writes that neither of the young people had ever handled bees before, and their experience on this occasion was therefore quite a revelation.

A Good Tool for the Apiary

It is not often that we give an editorial boost to any article advertised in our advertising columns; and when we do, it is because it has extraordinary merit. In this case we refer to the German scythe advertised by the Marugg Co., Tracy City, Tenn. The editor sent and got one of these, and found it so far superior to the old-style regulation style of scythe usually sold on the market, and so much better for mowing around beehives on account of its sharp point, that we believe we are doing our readers real service by mentioning it. It is very light, and seems to have a "swing" about it that makes mowing a real pleasure. The blade is almost as thin as paper, and for that reason it is easy to keep sharp. We have several of the old-style scythes about Rootville; but this German blade is preferred by all, on account of its splendid "execution."

Spreading Brood, Once More

In this issue, in *Stray Straws*, page 435, Dr. Miller and the editor have a little further discussion on this subject. The sage of Marengo believes that the practice should always be discouraged—at least he does not know of any time when *he* can do it to advantage. On the other hand, in this issue, page 436, Wesley Foster, in his department, says "spreading brood need not be done till the middle of May." But he adds, "It must be done with care." There is an admission on the part of Mr. Foster that it can be practiced to advantage even in Colorado. We in our first editorial, page 345, said there might be times when it would do no harm. Evidently locality has a bearing on the question; and it is evident, too, that the editor has been taking a middle ground between the views and practices of two of our leading beekeepers.

Clover Prospects

THE recent and continuous rains all over the clover belt have started up the clovers everywhere. In some localities these rains have come a little late; in others, in just

the nick of time; in others they will insure a bumper crop—more particularly in northern localities. In all localities, owing to recent cool weather, clover will be from two to three weeks late. The winter-killing in some places, and the hot April drouth in others, gave the clovers a setback. What these recent rains will yet do it is impossible just now to give any accurate forecast; but there will be a crop of clover honey in some localities at least, and some clover honey in nearly all localities.

California Honey Prospects

Referring to this, our manager at Los Angeles writes:

The beekeepers of California have had very bad weather for a month, with the exception of some very helpful rains. Nearly everything else has gone wrong—strong winds, fog, cold, and even light frosts have occurred. Sage is not so far advanced but that, with warm weather, a very good crop of sage honey will be produced. . . . The orange-honey crop will be very light indeed.

Helping the Government to Guess

DATA upon which to base an estimate of the summer's honey crop, and the prices which will result, are being collected by the Bureau of Crop Estimates of the U. S. Department of Agriculture. The second annual spring inquiry was placed in the hands of beekeepers known to the Bureau in April, and should have been mailed May 1.

The queries concern not only the condition of the beekeepers' own apiary, but his estimate of the number of bees in the locality, and their fate during the winter. From the returns on the question as to what caused the death of colonies during the winter, much material ought to be secured of value in preparing for next winter.

That no beekeeper should neglect filling out such questionnaires as these goes without saying. Upon the accuracy of these returns depends the value of the July estimate of probable production, and upon the crop estimate beekeepers will rely to some extent for their marketing plans. By co-operating to his best ability the beekeeper can easiest serve his own interest.

Poisoning Bees by the Use of Arsenates; Another Angle to the Discussion

IN this issue, page 436, Wesley Foster refers to our editorial on page 390, wherein Professor Woodworth, Horticultural Commissioner at Pejario Valley, California, gave it as his opinion that the bees are not poisoned by spraying-liquids. It will be remembered that a colony of bees was plac-

ed in the center of one of these big orchards in California. The trees in the immediate vicinity of the hive were fairly doused with the arsenide of zinc. Mr. Foster does not think the evidence is conclusive that the bees in that one colony gathered any of the poison, as the profusion of bloom would be so immense that the bees that were flying could go far enough away to get nectar from blossoms not sprayed.

He also says that as soon as the bees on the western slope of Colorado were removed from the districts where the spraying liquids fall on the cover crops under the trees the losses immediately ceased. This fact is somewhat significant.

We understand that the national Government is working on this proposition to determine whether the bees are killed by the spraying-liquids used on fruit-trees. We shall await with interest that report.

California vs. Canada; Why Queens that Lay Every Month in the Year are Superseded Quicker than those in the North that have Six Months of Rest

On page 440 Mr. Byer is surprised that the majority of Mr. Chadwick's colonies containing two-year-old queens degenerated into laying workers. Perhaps we can explain the situation. Mr. Chadwick is a mail-carrier for Uncle Sam. His bee and garden work he has to do between times. His outyard is located some four or five miles from the home yard. As he does most of the work himself, or did up to this season, it is easy to see something might happen among his bees.

Mr. Byer probably does not take into consideration the difference between his own locality and that of southern California. Mr. Chadwick's bees can fly nearly every month in the year; and the result is, his queens will be laying every month in the year; and two-year-old queens in California are almost the equivalent of four-year-old queens in Canada, where the seasons are only half as long. A queen that lays only four or five months in the year, or six or seven months at the most, can recuperate, where a queen that is laying almost every month in the year has no such opportunity.

In our migratory beekeeping in the Southland we have discovered that a queen that is continually on the job will play out much sooner than those that have a long winter's sleep or rest. These facts will explain why a two-year-old queen may be followed in California by a laying worker.

Things happen pretty rapidly in California. It is possible, however, that Mr. Chadwick has a sprinkling of Cyprian or Holy Land bees. These bees will quickly degenerate into laying workers.

The Distribution of the Bee and Fruit Industries in the United States; a Remarkable Coincidence

GREEN'S *Fruit-grower* is sending out a map furnished by the Chamber of Commerce of the United States, showing the relative amount of fruit grown in each state. The quantity produced in each state is shown by circles of various sizes. These circles are then subdivided by triangular sections in shape like pieces of pie big and little. Apple-growing (as shown by the big "pieces of pie") represents on the average about half of all the fruit if we leave out California and Florida. Strawberries, grapes, plums, and peaches each make a "piece of pie," to carry out the figure. In Florida, as would naturally be expected, oranges represent 90 per cent of all the fruit grown.

But the showing of this map that is most interesting to beekeepers is the fact that, where fruit-growing is shown by a large circle, beekeeping is also well represented. In other words, the states having the largest circles are also big bee and honey states as our records show. For example, California has the largest circle, and, as is well known, beekeeping is an important industry there. Then come New York, Michigan, Pennsylvania, Missouri, Ohio, Iowa, and Washington. In all the states mentioned, beekeeping as an industry is important in about the order given; and while, of course, it does not begin to compare in volume and size with the fruit-growing industry, a careful comparison of the map shows that beekeeping and fruit-growing go hand in hand. While this does not prove that one is directly dependent on the other, it does show that conditions that are favorable for the one industry are also favorable for the other. The great Creator had a *purpose* when he made it possible for the two to thrive side by side. In that "purpose" there is implied a recognition of the dependence of the fruit-growing industry on the bees.

Practically the only exception that we find between the relation of beekeeping to the fruit business is in Texas. Texas is probably second in importance in the production of honey in the United States, and yet it is almost at the bottom of the list in the production of fruit. This disparity is

explained by the fact that Texas produces large amounts of honey from plants and trees grown in the semi-arid districts. When water is once let on to these lands, they will at once grow fruit. Then Texas will come forward as one of the great fruit-growing states of the Union.

Serious Results from Beestings; what Precautions to Take

MR. CHADWICK, in this issue, page 437, in his department, tells of an experience that "came near being a tragedy" in his home. His wife, always more or less susceptible to the effects of beesting poison, was, on the occasion mentioned, stung by a bee just back of the ear (a bad place by the way). As she had been stung several times prior to this, without any serious results, she had not taken pains to keep away from the bees. But this time the sting had more than its old-time effects. A doctor was called, and soon she was out of danger. She was left in a weakened condition, however, and remained in bed for the rest of the day. This was very wise, as absolute quiet—at least no bodily exertion—should follow after a case of severe stinging.

We once had a case where a young man was stung a great many times. He became dizzy, and broke out in blotches. He was given a heart stimulant, and apparently revived. He took a tepid bath, and felt so much better that he said he did not see why he could not go back to work. After he had got his blood warmed up he had a fainting-spell, became unconscious, and his heart action had all but stopped. Fortunately we were at hand with an automobile, and rushed him up to the doctor at the limit of its speed. The great volumes of fresh air partly revived him, but it was evident he was in a serious condition. The doctor gave him a heart stimulant, and directed us to take him to a quiet place where he could get fresh air. We put a small electric fan in front of his face, and in a short time he was revived enough so he could talk to his friends.

The doctor afterward, in speaking of the incident, made this statement—that after one has been stung, or has received a general shock like this on the heart, the patient should be quiet for several hours. It was very important also that he do no work requiring bodily exertion for *several days*. After about two weeks we took this man to a specialist in Cleveland, and he reported he was in as good condition as ever. But it was evident that he had received a temporary shock.

Two or three times when we have published accounts of severe stings, some of our subscribers have come back at us that we should suppress the facts. We do not believe in anything of the kind. Beekeepers and others should be warned. Fortunately there is not one in a hundred thousand who is seriously affected by stings. Indeed, we may say we hear of hardly one in a million. All the newspapers in the country put together do not report one case of severe stinging in a year, in a population of about a hundred million. This shows that the average person has little to fear from one sting.

Our junior editor, Mr. H. H. Root, was at one time very susceptible to the effects of a single sting. He, too, would have fainting-spells and attacks of dizziness. On several occasions we were greatly alarmed, but he always managed to pull through. He had an ambition to follow in the footsteps of his father and brother. The last mentioned suggested the scheme of gradual immunization. This was accomplished as follows:

A bee was picked off a comb, and pressed gently against his hand. Just the moment that the sting pricked the skin, and before any considerable amount of poison could get into the wound, the bee and the sting were quickly removed. This was repeated a week afterward. At the end of four or five weeks there was an uncomfortable itching sensation. The hypodermic injections were then discontinued for several months and then resumed again. Afterward the patient got so he could take two sting pricks a week, then three, and finally it was discovered he could take the full effects of a sting without any inconvenience. It was not long before he went among the bees, and handled them as did his older brother. On one occasion when we went out together with a load of bees one hive was spilled overboard, releasing a lot of bees. The two of us each got something like thirty stings; and, remarkable to relate, the younger brother experienced no more harm than the older brother. He is to-day as immune as any of us.

To provide against a possible recurrence we suggest that Mr. Chadwick try out the same scheme on his wife. He should be very careful, however, to see that the first sting prick is *only* a prick, and that all subsequent sting pricks for a considerable time should merely pierce the skin. Suitable tweezers should be provided so that the poison-sac will never be squeezed in removing the sting.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



H. P. KIRBY, when bee-hunting, takes vinegar to dilute honey, p. 409. Why vinegar rather than water?

W. C. MOLLETT, in comparing Italians with blacks, p. 413, you omitted one marked trait of superiority in Italians. A weak colony of Italians will clean out the bee-moth where a weak colony of blacks will give up and die.

G. M. DOOLITTLE, p. 398, testifies "from many experiments and much careful observation," that queenless bees select for queen-rearing larvæ about 36 hours old. Thanks, friend Doolittle, for your expert testimony against the libel that in their haste for a new sovereign they choose larvæ too old to make a good queen.

I WONDER how many beekeepers take care that no young queen be reared except from the best stock. And then, of those who are thus painstaking, I wonder how many pay any attention to the drones. Yet we are told that the drone is just as important as the queen. It isn't such a very hard matter to encourage drones in a few of the best colonies, suppressing them in all others.

A SEVERE slump has taken place in the market value of Chicago's 7152 saloon licenses. A year ago they brought \$2500 to \$2800. This year, 89 licenses came into the possession of Judge Landis through the failure of The Tosetti Brewing Co., and he could get no bid higher than \$1200 for a license. It would be hard to say just how much this is due to the fact that a great dry campaign is to be waged in Chicago, with Billy Sunday in the thick of it. [What is taking place in Chicago is taking place in many other cities and towns in the United States. The saloon crowd is panic-stricken, and on the run.—Ed.]

THAT vigorous editorial protest against spreading brood, p. 345, would do good service if it were printed each spring, for each spring a fresh lot of beginners come into action, and one of the first notions a beginner gets into his noddle is that a sure way to hurry up brood-rearing is to shove an empty comb between two combs of brood. I think, however, that you are making a pretty liberal concession, Mr. Editor, when you say that under some circumstances "it may do some good." I don't dare to say that my experience should be a guide for every one, but I will say that in my locality and with my bees brood can be spread in

spring always and only at a loss. With plenty of honey in the hive, my bees always have all the brood they can cover, as soon as they get fairly started at brood-rearing; and pray tell me how spreading can make them cover more. Doesn't any good queen anywhere have all the brood in spring her bees can cover? [We do not know but that we agree with you; but if you will look at the editorial again we think you will see that the only time when spreading brood might do no harm, or might be an advantage in the spring, was during a spell of continuously hot weather. If it did not turn cold shortly after, it might do no harm. Generally speaking, the beginner should let the spreading of brood alone. Bees may not know much, but they know a whole lot more than their owner who knows more than he ought to know.—Ed.]

POLLEN is generally understood to be found in honey, at least a few grains here and there. It is doubtful, however, whether all beekeepers understand to what extent this is the case. The English pollen-expert, Mr. G. Hayes, says, *British Bee Journal*, 117, "You will remember that the pollen-grains are distributed all through the honey, and you can scarcely put in a needle-point without taking out pollen-grains." [The presence or absence of pollen in any sample of suspected honey goes a long way toward determining whether the honey is pure or impure. For example, invert sugar has many of the characteristics of pure honey. At one time certain unscrupulous venders thought they could adulterate honey with invert sugar, and escape detection; but they found out their mistake, for the chemists found that their adulterated samples contained too small an amount of nitrogenous matter—pollen.]

The fact that there is always some pollen in honey explains why bees will breed up on it better than they will on sugar syrup or any other artificial product. This also explains why colonies in the spring that have a good supply of *natural* stores will be stronger in the spring than colonies having only sugar stores. The former will breed up on honey when they could not do so on sugar; hence the relative difference in strength in the spring between the two sets of colonies. But that does not argue that sugar syrup is not better as a pure wintering food. If with the sugar stores there were combs of natural pollen the difference might not be so marked.—Ed.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



HONEY PROSPECTS.

Bees came through the winter with not an excessive loss in any districts of the Rocky Mountain region. The cold backward spring was not very conducive to building up early, and some weak colonies died during the long-continued cold weather in March. However, during April breeding was done, and the weak colonies with good queens certainly made a good report of themselves.

Bees are not swarming in May this year as was the case last year. Early in May the Rocky Mountain region was visited by freezing weather that ruined a large proportion of the fruit prospects in western Colorado and elsewhere. At the time of this freeze the alfalfa was up nearly one foot, and much of the fruit was in full bloom; bees were preparing to swarm, and a number of colonies had swarmed in Delta County. The freeze was a very serious thing for the fruit men, and put back the honey season several weeks, no doubt.

There has been such a generous amount of rainfall this spring that it is doubtful whether the shortage of irrigation water will be felt. The reservoirs are now fuller than it was hoped they could be, so that there should be water enough in most districts for the late irrigation.

The precipitation so far this year is $2\frac{1}{2}$ inches above normal; and if it keeps on raining we shall have plenty of moisture.

Sweet clover is thicker this year than last; and while it was frozen down pretty badly it will recover.

DRIFTING BEES.

Bees cut up some queer capers when a large number of colonies are placed in one location. Recently we were preparing 800 colonies for shipment; and to facilitate loading, about four hundred were placed close to the switch. Entrances were contracted prior to moving, and the hives were faced east and south, so that as little confusion would result as possible.

When the apiary was inspected the opening of the hives caused more drifting. Some drifting had been going on all the time until a number of hives were simply running over with bees while others had hardly enough to care for their brood. Almost wholesale distribution of the bees had to be done, and many weak colonies were placed on the stands of the strong ones. The bees were necessarily very cross from this mix-

ing-up; but the bees were finally pretty well distributed.

In order to prevent drifting, do not place colonies too close together; and avoid long straight rows all faced the same way. Do not release the bees so they rush out of the hives all at once (as they do when overheated). After moving an apiary it is best not to examine the hives if any drifting is going on, as the opening seems to aggravate the trouble more.

BUILDING UP COLONIES FOR THE FLOW.

It is certainly surprising how rapidly a very weak colony will build up if it has a young vigorous queen, plenty of honey, warm weather, and abundant pollen.

Proportionately a weak colony will build up faster than an average or a strong colony. There is such a thing as having a colony too strong early in the season. If you have, or can get, extra queens at the right time, increase can be made from the strong colonies without impairing the honey crop. It is all a matter of understanding how to take advantage of the season and its eccentricities.

In western Colorado I saw swarming the latter part of April. On a Thursday bees were swarming. Friday it was freezing, and Saturday it snowed. Such changes in the weather are hard on bees, especially swarms. Old colonies can protect their brood in pretty cold weather, as they are pretty populous at this time of the year.

In all that a beekeeper does he should work cautiously in the spring. Spreading brood need not be done till the middle of May, and then it must be done with care. Bees will spread their brood if they have abundant pollen and fresh nectar from fruit bloom and dandelions.

Most of our beekeepers are now busy equalizing stores, inspecting their apiaries, and getting things in shape for the honey-flow that is not due ordinarily till June 15 to July 1. Our season is now late, and July 1 will come before sweet clover blooms.

IS THIS TRUE SCIENTIFIC METHOD?

There has been so much said about spray poisoning that it may be out of place to say more; but the opinion of Professor Woodworth, that bees are not poisoned by spraying with arsenite of zinc, and that bees are not poisoned by arsenate of lead, is worth an answer.

Professor Woodworth should conduct his experiment with a hundred colonies instead of one. It should also be remembered that

Continued on page 439.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



We welcome the "Dixie Bee," and would suggest that it be the queen of the department pages.

The future at this date is all guesswork. The button-sage bloom will be increased but little if any.

Whether the rain will cause a heavier flow of nectar from the limited amount of bloom cannot be foretold. There will not be more than 50 per cent of a normal bloom, which will be sufficient if it yields well. The white sage never looked better, and the same is true of the wild alfalfa. I am expecting a slow flow from all these sources, and a prolonged season, but what the net results will be I cannot say.

Beautiful sunny southern California! Yes! No! Well, I guess not so you could notice it during the past three weeks (May 8). It is doubtful if worse weather has ever visited this section than that we have just had. On April 13 a storm struck here that did not entirely abate until May 8. Cold, hail, snow, heavy rain, and very little sunshine has been the program. During this period the temperature reached the lowest point of any day in May for 34 years. For three hours on April 30 my Tremont apiary was in the midst of a heavy snowstorm. Bees were driven out of the supers, and forced to cluster for protection. In many localities not in the orange districts feeding became necessary, and the entire bee business came to a sudden standstill. The best part of the orange season passed under these conditions, with the finest chance for a record-breaking orange-honey crop at hand. More than 5½ inches of rain fell in this locality.

The past three weeks has afforded an opportunity to study the effect of bad-weather conditions on field bees, and I have improved the time with experiments. I am better satisfied now than ever before that bees will not stand the exposure many think they will. During the time of these experiments the temperature ranged between 40 and 50 degrees, and showers were frequent, with but very little intervening sunshine; but we were not without sunshine to an extent that thousands of bees were enticed to the field, only to be the victims of cold rain. I proved to my entire satisfaction that nine out of ten bees will

die if they are wet during the day and not able to dry or warm up before the next day. In one experiment I watched the actions of a small bunch which had fallen to the ground when a swarm had been shaken into a basket during a shower. This bunch contained perhaps a hundred bees. The day they were rained upon afforded them no opportunity to return to the hive; but on the other hand they were wet several times during the day and night. At the end of the second day the entire outer layer of bees had died. They were removed from the cluster, after which more rain fell, the second day more had died. Out of the entire number not one bee was alive at the end of the third day.

Some were carried in a basket and set indoors. At the end of the third day most of those had died. I do not believe that the mortality rate in bees was ever heavier than during the past three weeks. I had one colony of bees which were working in a shallow super, drawing combs, that were not able to muster force sufficient to return to the super to-day (May 11), to continue comb-building, although the day has been a hot one. Fifteen dead bees were counted on the sidewalk within a distance of two blocks. Wetting in cold weather is fatal to bee life.

A bee-sting has always been looked upon by me as a painful little joke, and I have wondered many times at some of the stories written of bee-stings causing the death of persons. That day is over with me. On May 4 the effects of a sting came near ending in a tragedy, and I wish here to warn those who are poisoned severely by their stings to avoid them if possible. I had just come home in dinner on the date mentioned, and my wife came to the back steps to greet me. Before she was aware of any danger a bee (without warning) stung her on the head just above and a little back of the ear. The suffering was intense from the very first. I took her into the house, removed the sting, and applied some ammonia, but to no avail, for she began to turn white, and coughed violently. This was followed by vomiting, loss of sight, and turning purple. Meantime I saw danger, and called a physician.

In thirty minutes from the time she was stung the doctor was present. The first move he made was to test the pulse. Ther-

Continued on page 439.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



That was an interesting article on page 242, March 15, "The Alexander Method Adjusted to a Clover Locality." I think that was just what we had been looking for—some adaptation of this famously successful method to localities dependent on clover. We are likely to try out a plan like this ourselves.

* * *

One evening, about the 27th or 28th of April, the moonlight that flooded our hives and yard seemed deliciously fragrant. "Can honeysuckle be in bloom somewhere around?" we asked, but doubted. But when a neighbor reported next day that our bees threatened to carry her blossoming locust-tree quite away, we understood and rejoiced. That was probably one of the first locusts around here to come out, but now they are in full bloom.

* * *

The reputed effect of patent-medicine advertisements is to make the reader immediately certain that he has some if not all of the symptoms described. And looking at those pictures of foul brood, and reading descriptions of it, makes some of us who are fortunately unfamiliar with it shiver with the wonder if we haven't some combs that look just that way. Is it like measles, bound to come, and the sooner the better? Less difficult, perhaps, while you're small.

* * *

It was such a dry April! Day after day of beautiful warm sunshine, but no rain, no April showers. Our fond hopes of clover were beginning to wither. But then we read in April 15th GLEANINGS, pages 326-7, Mr. Adam Leister's favorable comment on "the very light rainfall for the spring months," with the assurance that "to make up for this we are sure to get an abundance later." And now, May 6, we have just had a splendid life-saving sort of rain, and our hopes are reviving.

* * *

Our neighbors are very kindly disposed toward our bees; but one thing that has proved troublesome until this year was our bees' fondness for the water at one neighbor's pump and hydrant. So this year we followed the suggestion we had seen in the A B C, and put water out for them very early in the spring, when they first began to fly. We salted it slightly, put it in a common Mason jar, laid tiny bits of thin strips of wood across the mouth after filling

the jar, inverted a shallow pie-tin over the top, and then, holding the tin with one hand, tipped the whole combination upside down. Later, this one jar proving insufficient, we added another. We fill them every morning when we water the chickens. Watering bees is no more trouble than watering chickens. And it is an interesting sight to see these crude and decidedly amateurish-looking water-arrangements crowded with bees all day. They measure well up to the traditional popularity of watering-resorts. The water-plant arrangement mentioned on page 246, March 15, promises more of artistic effect, and probably we shall try out something along that line next year. Meantime our bees and our neighbors are at peace, and so, therefore, are we.

* * *

ITEMS FOR BEGINNERS.

Please, all you brother and sister beginners, be sure to use full sheets of foundation and wire it. We didn't, at first, and now we are breaking our hearts over a lot of drone comb. We just hadn't paid much attention to the combs before—combs were combs; but now we are putting those poor ones into the supers to let the brood hatch out, then the bees may store what honey in them they can and will, and then goodbye to those combs. And we shall have as perfect ones as we can get in the future.

Even if you have only two or three colonies, start right in keeping a record of them. It is a wonderfully good habit, and will be more than worth while. You need not condense your comments as much as the big beekeepers do, either. You have more time than they, and far less experience. Better put down everything you observe in the condition of each hive whenever you examine it, whether you understand that condition or not. Record how much brood and stores each one has, and what you did about it; raised a frame of brood, perhaps, to give the queen more room, and inserted a sheet of foundation in its place. (Though of course, you would not do that except to a strong colony, after settled warm weather had come.)

Of course you are dreadfully worried about robbers. Every time you go through a hive, and then see an exciting number of bees in a vibrating sort of cloud around the entrance, you are convinced that that stand is being robbed. Perhaps it is. Probably it is not, especially if there is a honey-flow on. Since our first direful experience, when we took a quart or two of dead bees from

in front of two hives, we have been as nervous as kittens. Another slight case, but immediately recognized, occurred the first time we went into our bees this spring. But many times since then the signs, superficially observed, have seemed to cry wolf, when there was no wolf. Just a day or two ago, after looking into half a dozen hives, I was loafing around, watching the bees fly (and is there anything more fascinating?), when there—surely that hive was being attacked! And that one! And still another! But a second and more deliberate look showed that the bees were merely playing in the sunshine. I had finished work about one o'clock, and that approaches an hour especially popular for the gambols of the young bees. Drones were among them that day too; and the sound of the happy little things was quite different from the voice of robbing bees.

Later.—Noon, May 8. A child with a

white-clover chain about her neck! It must have come!

* * *

Mounting on wings of undaunted desire

Straight through the heart of June's opal and blue,
Bees, how you flash! How you strike out and soar!

Are you daring your dreams to come true?
Daring your dreams! As a flame dares the fire!

They'll come true!

They'll come true!

June in the heart of you, June in the wings!

June in the part of your spirit that sings!

Bees, are you spirit? Or breathless desire,

Or the rapture that dares to aspire?

Daring to dream and then daring to do!

They'll come true—

Those brave dreams—

They'll come true!

If all of us had the persistence and the apparently eager zest for effort that the bees show, most of us would come nearer the achievement of our own fair dreams.

BEEKEEPING AMONG THE ROCKIES—Continued from page 436

bees will fly a considerable distance and may not work in the orchards in which they are placed. I believe it has been demonstrated that bees prefer to fly some distance rather than gather nectar close to their hive.

The conditions mentioned by Professor Woodworth were ideal for that colony *not* to be poisoned to any appreciable extent. There was such a profusion of bloom that the bees probably had not one chance in ten of gathering nectar from sprayed bloom. If arsenite of zinc is repulsive to bees it is welcome as a spray liquid, for it is a matter of quite common knowledge that arsenate of lead attracts them. Bees are quite often seen around the spray-tanks. It is possible the bees attempt to utilize the arsenate of lead as a substitute for pollen, or they may be in search of moisture when hovering about the spray-tanks.

The presence of other honey-plants upon which bees may work is an important factor. If alfalfa, sweet clover, alsike, or other

clovers were in bloom when spraying is generally done in Colorado, I doubt whether any losses of bees would ever be noticed. All the loss seems to come when the orchards contain the only bloom available.

The only reports I have received of bees dying from poisoning during the past four years have been from commercial-fruit districts, except one or two minor ones. Bees were reported killed by poisoned syrup sprayed upon sugar-beet leaves to kill grasshoppers. I saw bees dying, apparently from the effects of poisoning secured from a pail that had contained sheep-dip liquid. Quite a number of colonies were weakened last year near Denver by the supposed poisonous effect of smelter or city smoke.

The most significant point in this matter is that thousands of colonies of bees have been moved from the orchard districts with success. The trouble ceases when the bees are moved, or very soon thereafter.

BEEKEEPING IN CALIFORNIA—Continued from page 437

he quickly prepared a hypodermic injection to restore the action of the heart, which had by this time become very low. In a few minutes the injection had taken effect, and the danger had passed; but she remained in bed the rest of the day, and for the next three hours I wrung cloths out of hot soda water and applied them to her neck. The weakness from this experience remained with her for a week. Strange to say, the swelling was of little consequence; in fact,

it amounted to less than from any sting she has ever had. The physician said that the sting of a bee is as poisonous to her flesh as the bite of a poisonous snake would be to many persons. I certainly do not care ever to see any one suffer to such an extent from a sting again. Mrs. Chadwick was almost heartbroken to think that she must give up helping me with the bees, for recent stings, previous to this one, had led her to think she was becoming immune to their poison.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



An early spring here in Ontario, and all kinds of vegetation, including the clovers, are looking well. The latter part of April was unusually warm for this latitude, and everything came on with a rush.

In fact, there was such a rapid growth that we feared late frosts might seriously affect the tender growth. But during the last ten days we have had cool wet weather, and the growth has been held back somewhat. All things considered, this is for the best.

For the information of Dr. Bruennech, page 245, let me say that I am not "pretending" when the statement is made and can be substantiated that in our Cashel apiary we had a Carniolan queen that lived till her seventh year. She was not at all profitable during the last two years of her life, but was kept as a curiosity to see how long she would live. Her five first years had been so profitable to us that we did not begrudge giving her a full lease of life, even though she was not so capable during the next two. But, as Dr. Bruennech intimates, four years is the limit of most queens according to my observations—in fact, very few from the matter of economy should be kept that long.

Bees clustering out in April is an unusual experience for us. While little of this was noticed at the apiaries here in York County, the fronts of the winter cases at the north yard were covered with bees in the evenings during the warm spell in April when bees were on soft maple. As a result, many colonies had to be supered at that early date, and the queens at once started laying in the upper stories. With normal spring weather from now on, the majority of the colonies in this yard will have to be relieved of old honey to allow the queens room. While the general verdict is that aster honey granulates rapidly, in this case there is none of the granulation in evidence at this late date, and I never knew bees to winter outside on such a small amount of stores.

G. M. Doolittle is one of our closest observers; and this being the case I read with much wonder his statement on page 312, April 15, that he had never heard a queen "pipe" except on a comb. The matter is beyond my comprehension when I remember that Mr. Doolittle has been handling

queen-bees nearly all his lifetime. Time and time again I have brought a package of queens home and placed it on a sideboard, and the children would soon be listening with interest to the challenging notes from one queen to another. More than that, I have heard them quacking in the box in the postoffice when a number were tied together, and it has been a common thing to have them thus exercising in my pocket on the way home from the postoffice.

P. C. Chadwick, page 353, says that, among the number of his two-year-old queens that have played out, the majority of such colonies have fertile workers. Another mystery to me, surely! Is it in the strain of bees, or what? While I do not for a moment claim that there is no such thing as fertile workers, yet in our yards their occurrence is rare indeed. And as we do not practice systematic requeening, we have some queens play out too—in fact, far too large a percentage to please me. But in at least 99 cases out of 100, either an old played-out clipped queen will be present, or else a virgin that has been reared too early in spring to get mated. To be perfectly honest in this matter, I cannot say that I am sure of ever having had a genuine case of laying workers. The few times we imagined such was the case, we were not sure but that a small virgin might have been present.

Recently I received from Mr. Samms, of Mars Hill, N. C., a pail of "chunk" honey of delicious quality and appearance. The source of this honey—basswood—rather surprised me, as we do not generally find basswood honey so far south. I frankly acknowledge that the quality is equal to our own basswood honey, both in color and flavor. By the way, the term "chunk" honey does not appeal to me at all, and I wonder that our southern friends—more particularly those of Texas, where this style of putting honey on the market originated, if I am correct—do not get some more attractive name for honey marketed in this way. From North Carolina we have had samples of three beautiful lots of honey—basswood, locust, and sourwood; and for my own part, at least, the term "southern honey" has a much better sound to me than it did a few years ago. [A large number of the southern producers now favor the better name, "bulk comb" honey.—ED.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



LONG WINTER CONFINEMENT OF BEES.

"Will Mr. Doolittle tell us how long a confinement bees can stand and come out in fairly good shape? My bees were confined to the hive from Nov. 10 to April 15 the past winter, a period of over five months, and as a result I have lost quite heavily. Besides, I have now on hand several colonies which are too weak, through spring dwindling, to be of much use before the buckwheat flow. Did you ever know of anybody having bees confined that long?"

This certainly was a long confinement for the bees. But in going over my old diaries I find that this is not the longest period, for during the winter of 1903 my bees had no flight from October 30, 1903, till April 5, 1904, or during a period of five months and six days. Some of the colonies appeared not to have suffered materially by this long confinement, at the time; but afterward they gave proof that this long holding of their excrement told on their vitality, while none of the colonies wintered on their summer stands were what could be called perfect colonies by the 20th of May. Nearly all had dwindled more or less, while several had died.

After April 5 we had more cold, and snowstorm after snowstorm, followed by clouds and cold winds, so that it was impossible to remove the bees before May 2. This had much to do with the poor results with those wintered on their summer stands, but I do not think it possible that bees can be confined for more than five months on the summer stands, and come out in perfect condition for the summer's work.

On May 2, 1904, the bees were removed from the cellars, those at the out-apiary on the forenoon of that day, and those at home in the afternoon. This gave a confinement for these cellar-wintered bees of three days more than half a year, and, if my memory serves me rightly, a longer period than any that has been recorded up to the present time, which is something worthy of being jotted down.

How did they come out? There were three colonies at the out-apiary short of stores, since they had only about eight pounds each at the start. I expected to feed these from the reserved combs of honey stacked there, but the winter swooped down before I got to it, and I thought I would risk them rather than open the hives to set

in combs of honey with the mercury hovering near the zero mark. These three starved, and I find this written in that old diary: "I am ashamed to record the starving of these three colonies, for away back in the eighties I lost a good colony in April from starvation, and at that time declared that should be the only one whose dead bees should accuse me of such wickedness. It is wicked to allow anything which has served me so faithfully to starve." Three other colonies had diarrhea, and died while the rest came out in as good shape as in average years. Those in the special repository at home came out fairly well; but a few of them showed spring dwindling slightly.

When the farmer and I entered the cellar to carry out the bees, the first colony we took showed no signs of life. The hive was set on the cellar bottom, and knocked upon—no response. It was set aside as "dead." As we came to the starved ones they were set on top of this one, and these dead colonies left in the cellar till all were out. The hives had been set in the back part of the cellar, with the entrances toward the wall, in which there is no window. This prevents any light from shining directly in at the entrance. When all were out, the farmer asked me if he should carry out the dead ones and pile them up with the hives of reserved combs. I admitted that he might. All went well till he came to the last one (or what was the first one we took in), when I heard an outcry. I found the bees just fairly boiling out of the hive he was bringing from the cellar. The wet cloth used in removing was hastily thrown over the hive, and it was carried to its stand. And, strange to say, that "dead" colony was the nearest to a perfectly wintered colony I ever had seen or ever have seen since. No dead bees were on the bottom-board, no spotting of things on their first flight, and no dwindling afterward, and that after a confinement of three days over half a year. This colony had not consumed half of the eight pounds of honey the light ones had eaten and died. I had been told in the past of colonies which were so nearly dormant as to be apparently lifeless while in winter quarters; but to see such a thing with my own eyes was something of a "surprise party" to me.

I have pondered over this very much since, and experimented, looking toward bringing the whole apiary up to such a standard of wintering; but as yet, little advancement has been made.

GENERAL CORRESPONDENCE

BUYING AND KEEPING BEES IN LOUISIANA

BY G. FRANK PEASE

Having made up my mind to buy more bees I finally planned an automobile trip south through Indiana, Kentucky, Tennessee, and Alabama for that purpose.

On Dec. 12, 1912, my wife and I started from Battle Creek, Mich. Our load consisted of a camping outfit containing a table, three chairs, stove, box of cooking utensils, grub-box, box of tools, trunk, bedding, tent, canvas cover for auto, two guns, thirty traps, fishing-tackle, four extra tires, and some other necessities. When loaded, the outfit weighed two tons.

would send the dog clear over against us, and brakes squealing so that if something had broken we would have been dashed many feet over steep embankments.

We had to change tires thirty-four times between Michigan and Birmingham, Ala. Sixty-inch ruts caused much trouble, for our auto was only fifty-six inches between wheels. A number of times we had to go many miles out of our way (on account of washed-out bridges), leading us often into deep chuck-holes that had to be made with a dash.



A corner of one yard in the spring soon after transferring.

We started on rough frozen ground, and wound up in the clay mud of the southern rainy season. Many times we were in mud above all four hubs, and had to pry up the auto and lay rails to run out on. We crossed nearly one hundred streams. One stream was sixty rods wide, and in two places the water reached the floor of the auto. It was rain, rain, rain, and mud, mud, mud, for days and days.

We coasted a mile in a number of places, and four miles in one place with the engine cut off and brakes set. We had to twist and wind down some hills with bumps that

Most beekeepers (except the few who were up to date) kept their bees in tall gums or hollow logs cut off and set up on rocks. But few bees could be bought at a place, and it would have been hard to buy more than one hundred colonies in any one locality; and it would have been necessary to draw them over rough roads from ten to twenty miles to get them together in hives that would hardly hold together.

One man having a number of colonies claimed he could take twelve worker bees and one drone and make a good swarm in three weeks; and yet he would sell no colo-



G. Frank Pease's work-tent, 26 x 44 feet, in which all the supplies were put up.

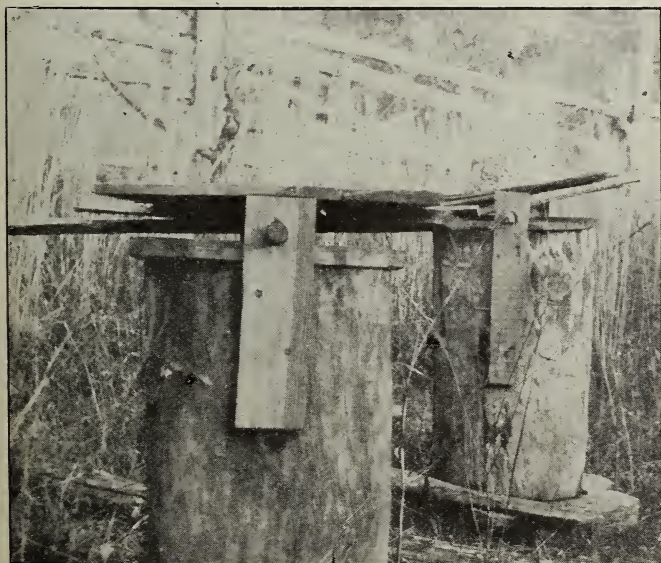
nies, although making them was so easy. Many people thought king bees rule the swarms, and some thought if one could catch a king bee all the bees would follow. Some thought there ought to be good honey-flows from oak and pine trees, and many other trees and plants.

In answering advertisements I came in touch, through J. B. Marshall, of Big Bend, La., with 324 stands near Shreveport, La., which I purchased in March, 1913, and for which I began the task of preparing new hives. In this task I was limited in time,

as the honey season was just coming on, and I also had to wait until April for my new supplies to come. All I could do was to make new hive bodies, fill them with wired frames of foundation, set them on top of the old hives, and let the bees build combs and start brood in them. But few were transferred until the next season. As the season was poor, few bees swarmed. The honey was only forty pounds per colony, spring count, and an increase to 356 colonies.

My real work commenced in January, 1914, on my return to the South. Although I had left from thirty to sixty pounds of honey stores per colony the fall before, I found that they were in a starving condition, due to a warm winter and much brood-rearing. Since this starving condition made transferring easy, I began transferring, and fed as fast as I changed.

Nearly half the colonies had brood in both the old and new hives. Setting the new combs, with what little honey and brood was in them, in a new hive-body, and cutting and transferring the brood and best combs from the old bottom story, and



Log gums in Alabama.

feeding sugar stores, was the first step toward putting the bees in a prosperous condition. I fed by turning ten-pound pails full of syrup and with cheap pie-tins over them bottom end up, placing them on top of the frames and setting empty hive-bodies over them.

All the bees had to do was to crawl over the edge of the shallow pie-tins to get the syrup, which they would generally do through the night if there were enough

of brood per swarm, one even having twenty-five frames of brood.

The spring was backward, and little nectar came in until the latter part of March. From then on a slow flow was on most of the time until the first of July.

July (the best honey month of the year) was a complete failure on account of a bad dry spell. Thus my crop was only 57 pounds per colony, spring count, with an increase from 364 to 560 colonies (increased

mostly by division), and about 1100 pounds of wax. I had 8000 new wired Hoffman frames made into full-drawn combs. From thirty-five to sixty pounds of honey stores the latter part of August, and a slow but steady flow of nectar when I left for Michigan, gave me hopes of a successful wintering.

My section honey was mostly built over double ten-frame hives



A large force was necessary.

empty combs to hold it. I put small twigs under the pails so the syrup could run out. When there was not enough drawn comb to hold the syrup the bees went right to work drawing out foundation. Of course feeding had to be done at night.

To keep bees from robbing, while transferring, I built a screen tent to work under. Believe me, bees are always on the lookout to rob in the South—at least where I am located. The bee-moth will also ruin combs within eight or ten days if they are not left in the hives. So I winter all combs over bees.

Although many swarms were taking their midwinter rest from brood-rearing, and there were no drones when I commenced transferring, I lost only one colony transferred, and that by robbing in an out-apiary. I lost several from starvation in out-apiaries before I could get to them, as the heavy old hives made it hard to judge their supply of stores.

I transferred nearly 200 colonies in January and February, and also bought and transferred enough bees to make me 364 colonies, spring count.

A cool spell stopped the pollen supply, and also stopped brood-rearing right in the midst of my work; but when pollen again began to be carried in, brood-rearing started in earnest. By adding new hive-bodies filled with full frames of foundation I later had an average of fourteen frames

and that will be my plan for producing honey next year. Bees in the South need plenty of room in which to rear brood, and also to keep down swarming.

I build my hives with bottom-boards the same size as hive-bodies, so they will pack better in loading. The bottom-boards have a hole eight by ten inches through them, covered with galvanized screen and a sliding tin to gauge air-space or to close for spring brood-rearing. There is also a sliding metal piece at the entrance to gauge according to the season, or for protection from robbing. To move a swarm of bees several miles I have only to push in the front slide, see that the under slide is drawn away from the screen, load, and away they go.

For an alighting-board I make a small board and nail two pieces of bent sheet iron. This fits in the groove that the front slide fits in, and drone-traps are also fixed with tin grooves to fit in the same grooves in front of the hives, making them very secure, so the same combination works for all.

I have a frame made to hold two 8 x 10 glasses for a cover. This always fits the hive, making it bee-tight, and also allows one to see at a glance how bees are, without letting in cold air. Over this I have a tin cover to keep all dry, and, lastly, a wooden cover over all as a weight and a protection from the sun. This combination makes three air-spaces between the sun and the bees.

I hope the year 1915 will be a good season in which to test out my localities; and as I have as high as 200 colonies in an apiary I expect to make new locations next spring. This will give the bees a better chance.

With other apiaries besides my own in one territory, nearly 500 colonies can reach the same flora. There are nearly 900 colonies in a straight line of nine miles.

Marshall, Mich.

A PERAMBULATORY EXTRACTING EQUIPMENT

BY E. F. ATWATER

Some time in 1910 Mr. E. B. Metcalf, of New Mexico, described his portable extracting-outfit with which he handled the output of 1500 colonies of bees.

Two years ago I found that the use of a building at each yard for extracting, where very large crops are not the rule, is very expensive when more yards are added each year. Certainly for a district where heavy

a floor space 12 x 16 feet, 8 feet high, with large screened openings 3 x 8 feet on each side, making a cool place in which to work.

At the rear, on one side, is an opening in the canvas, 3 x 3 feet, covered by a large flap through which the supers of honey are put into the tent and are piled in long shallow pans. Through the door in the front end the empties are removed.



A portable outfit saves time and money.

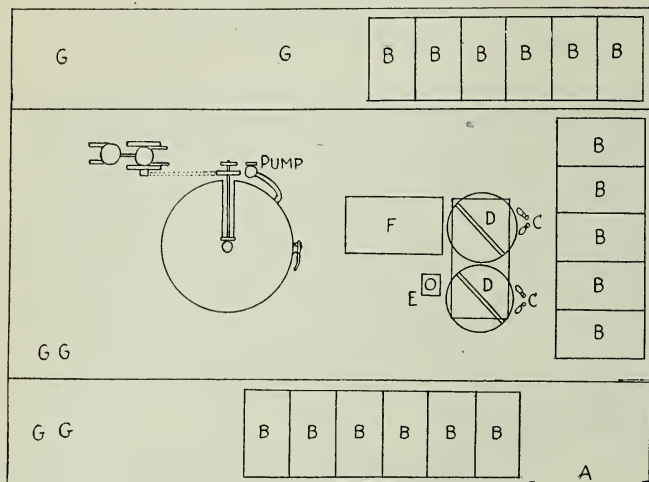
crops are not the rule, a portable outfit is desirable, and a time and money saver; so we built an extracting-house on a first-class low-wheeled truck. The main floor is 7x16 feet, with sides 2½ x 16 feet, which are turned down when the yard is reached, and the tent can be quickly set up. This gives

There is ample room for several workers; and in robbing time, 100 full-depth supers of honey may easily be piled inside at one time.

The floor arrangement is illustrated.

The supers come through opening A; are piled along walls at BB; the uncapper (one

or two) stands at CC, uncapping into tubs DD (which have slatted frames or screens supported a little above their bottoms) and both draining into one can beneath. The tubs rest on a suitable framework so as to bring them to a handy height for work.



Plan of portable extracting-house.

The uncappers use steam-knives heated over the gasoline-stove E. Combs are set in drain-box F, without stopping.

From drain-box F the man at the machine puts the combs into the extractor. When extracted they are jerked out of the machine and piled on the edge of the can and cross-arm, the reel again being filled and started. Empty combs are put into supers which are piled at GG, and thence returned to the hives by passing them out through the front-end door of the tent.

The honey is pumped up about 6½ feet, then run outside through 2-inch hose, into tanks located near by. In case of a light extracting at the end of the season, the honey, if desired, may be run into a tank in the corner.

In this connection many a failure to get good results with the pump is due to faulty use. When our pump arrived we saw at once that there would be a great waste of power in expecting the pump to draw our thick western honey through the small hose or to discharge it through the small pipes sent for the purpose.

By reference to the tables used by plumbers it will be found that a slight increase in the size of a conducting-pipe results in a very considerable reduction in the retardment of the stream, due to friction between

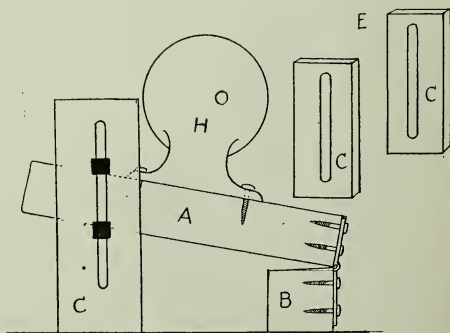
the liquid and the pipe. We mounted the pump a little below the extractor and connected it with the extractor by a 2-inch suction hose, so that gravity carries the honey to the inlet of the pump.

From the pump upward we use about 1¼-inch pipe, and then carry the honey wherever desired, with a 2-inch suction hose. So connected, one's troubles with the pump are over, and its capacity is ample.

We mount the pump as shown so that the pump platform may be lowered to tighten the belt.

At the rear the 2 x 6 is hinged to the 4 x 4 block B, while upright 2 x 4's are slotted so long bolts will pass through both, above and below 2 x 6 A, to fasten the pump-platform at any height.

For a few yards, and not too many hives, a permanent room 9 or 10 x 16 ft., on such a wagon will answer nicely, and save some time in setting up; but for many yards the larger outfit allows faster work.



HONEY-PUMP MOUNTING.

A, edge of 2 x 6; B, end of 4 x 4; C, side of one of the slotted 2 x 4 uprights; CC, under E, position of the 2 x 4 uprights; H, the honey-pump.

Our only difficulty these last few years has been to get enough honey to work with. Such a portable outfit is far cheaper than an equipment at each yard, and there is far less robbing than with a building standing on the ground.

Meridian, Idaho.



Bees produced little more than winter stores.

AN OFF YEAR IN WEST VIRGINIA

BY S. MACDILLEY

In 1913 we were so hard hit by drouth that I don't believe any colonies in the county produced a surplus above what was required for their wintering. Last year conditions have been a little better.

The photograph showing half of my apiary was taken in August, before any surplus was removed. It speaks for itself.

We depend on locust and basswood for nectar, though wild flowers and apple-bloom play a small part.

Comb honey sells for 15 to 20 cts. a section. Extracting has not been introduced yet, as our local trade consumes all surplus.

Edray, W. Va.

BEEKEEPING IN JAPAN

BY S. IMAMURA

The beekeeping business in Japan has been carried on by my countrymen from very ancient times. The common Japanese honeybee is black, with a small body, a sting, and has all the evil characteristics of the common blacks of America.

Some people say that Japanese honeybees are of two kinds—one yellowish black and the other black. The history of the yellowish black is as follows:

Over 350 years ago a Christian priest named Francis Xavier came to this country, and at that time a foreigner brought some

yellow bees from Europe and stocked them on Okinawa Island (between Kyushu and Formosa). The result was not good, and the apiary soon vanished, but the brood spread over the southern part of Japan.

Some years ago Mr. K. Aoyagi imported some colonies of Carniolan bees and started an apiary at Hakone, and afterward imported several other kinds.

It is curious that, although different sorts of foreign bees will cross with each other, Japanese honeybees absolutely refuse to do so. That is to say, Japanese queens and



Apiary owned by M. Norikane, Tukatamura, Horasimaken, Japan.

drones will not mix with foreign drones and queens, and so they always retain their natural character.

In 1909 the president of the Beekeeping Association of Shimabara Peninsula was the governor of the peninsula, and in 1910 our association sent Mr. F. Nakamura to the Sandwich Islands, where he bought some colonies of pure golden Italians from Mr. Eph. C. Smith. The following year these colonies had increased to 150, and were divided among the members of our association.

In 1911 and the following year there was quite a rage for the Italian honeybee, especially in Gifu, Fukuoka, Rumamote, and Nagasaki Ken, and the price per colony advanced to yen 100.00 (\$50.00), and even reached yen 150.00 (\$75.00) at the height of the rage. This enthusiasm did not die

out till the beginning of this spring; but the price now is only yen 10—15 per colony.

Stocking of bees is not at all evenly distributed over this country, even in this small peninsula. Some parts are very much overstocked, and the other parts have not a single colony.

Modern beekeeping is quite a new industry in Japan, and at present beekeepers are rather colony-sellers than producers of honey; but I believe that in a few years the industry will greatly increase, and much honey will be produced. We have many honey-plants such as cherry, rape, jasmine, fruit-blossoms, live oak, wax-tree, buckwheat, tea-blossoms, camellia, and many others.

Nagasaki, Japan.

ADVANTAGES OF A SHALLOW BROOD-FRAME

BY D. W. HOWELL

I use ten-frame brood-sections, but have them only eight inches deep. This depth, I find, is better adapted to this locality, and gives more honey in the supers. When the bees are storing honey from the fall flow, and the queen is decreasing her egg-laying, this space is filled with stores for winter. The medium-depth brood-nest which I use

does not allow so much room for stores that we do not need to winter on here.

I make my frames $7\frac{1}{2}$ inches deep, and want them to hang flush with the top edge of the hive section, just as the shallow deep supers do. I then use 16 x 20 sheet-zinc queen-excluders which lie flat on top of frames and hive section.



Part of D. W. Howell's home yard.

The supers and also the brood-sections should have the bottom edge of the ends beveled one-half their width on the inside, which will do away with the trouble of having the ends of frames stuck to the bottom edge of the section placed above. When hive sections are made this way they are much easier taken apart, and fewer bees are killed in handling.

I am making and using a hive-stand 5 inches deep, 22 inches long on top, and

beveled to the bottom as the illustration shows. This allows the bees to have a good alighting-board when they drop with heavy loads. This stand is covered on top and front, also a strip is nailed in the back as a brace. On top of this cover is then nailed $\frac{7}{8}$ square strips on sides and back. The hive sections are then placed on these strips, doing away with the bottom-board entirely. All this should be given two coats of paint. Shellman, Ga.

CONNECTICUT BEEKEEPERS TALK OVER PROBLEMS

BY L. WAYNE ADAMS, SEC.

The twenty-fourth annual meeting of the Connecticut Beekeepers' Association was held in the state capitol, Hartford, April 17, 1915. President Bunnell, in his annual address, mentioned the advantages of the association for learning by getting together. Non-members as a rule are indifferent and slack beekeepers; but members take more interest in bees. Last year was the poorest in his experience, for honey, but the most prosperous for the association. The field day last July was a grand success—ideal weather, good speakers, and excellent program, including the visit to the state prison.

A decided forward step was taken last

fall when President Beach approved of the plan to install an apicultural department at the Connecticut Agricultural College. This was advised by Mr. Augur in 1883, and is, at last, about to materialize. The college has seemed reluctant in the past to install beekeeping. Students will become interested, take home the ideas, and save the nectar from going to waste.

Dr. T. S. Scranton, of Madison, delivered a most interesting talk entitled "Beekeeping on the Farm Fifty Years Ago." Dr. Scranton is probably the oldest beekeeper in Connecticut, being 84 years of age. He has kept bees for 66 years. He once said that



Howell's hive-stands which do away with the bottom-boards.

he had kept bees over sixty years, and didn't know anything about them until the last twenty. He exhibited an ancient model of a hive known years ago as Hall's Self-protection hive. The "protection" was against wax-worms, and consists of two trap-doors in place of the bottom-board to be opened frequently to empty the wax-worms—the theory being, perhaps, that the worms live in the bottom of the hive and visit the combs only for food.

While he was still new in beekeeping, an improvement in hive construction came with an upper story containing boxes. This yielded ten pounds of honey—clean, and free from dead bees—such a curiosity that the townspeople called from miles around and viewed it with surprise. Hall's famous Self-protection hive was the next improvement, and with it came the inventor's book on bees, containing some of the following statements:

"The queen always lays queen eggs before departing with a swarm. The bees know the difference." "A queen can be made at any age by feeding properly."

Dr. Scranton exhibited an ancient frame which had a triangle-shaped top-bar with a sharp edge pointing toward the bottom-bar. This sharp edge served as a comb-

guide for the bees to build the comb exactly in the center of the frame.

Geo. H. Yale, third president of the association, read a paper entitled "Some Things I have Learned in Keeping Bees." He said he had kept bees thirty years. He began by purchasing a hive standing on end with cross-sticks inside. He brimstoned the colony at the end of the second year. One Sunday afternoon he captured a swarm by sawing down a sapling. His knowledge of beekeeping began at this time. The following year a swarm issued, and he captured two swarms at once on a sheet, placing two hives where he expected the swarms to separate and each chose a hive; but they both entered the same hive. He finally managed to separate them into two colonies. He has learned by experience that bees dislike woolen clothes, dark garments, and quick motions. Bees do better in hives facing east or south. He prefers some protection when hiving a swarm, and finds the bee-escape a great help when producing comb honey. King-birds and bee-martins, abundant when drones are flying, catch queens.

Allen Latham spoke on "Bulk Comb Honey." He uses starters instead of full sheets of foundation to avoid the thick



One corner of the Bonser apiary, near Conrad, Pa.; 114 colonies with young queens and in fine shape. Mrs. Bonser is foreman of the apiary, but Mr. Bonser is getting to be quite a beeman.

tough midrib. He prefers the long hive or "Let-alone," with seven or eight frames in front for brood-rearing, and twelve or thirteen in the back for storage, the frames running crosswise. When cutting out chunk honey he leaves the starter in. Bulk honey can be taken from the hive and put up at any time, but extracting must be done in warm weather. He uses frames with closed top and end bars. O. O. Poppleton's hive is quite similar, except for this feature. Bulk honey can be produced also in Langstroth hives by tiering shallow supers. Plenty of room in his hive keeps down swarming with black and Italian bees, but not with Banats. This hive is always ready for winter, and requires no packing.

Mr. Latham produced 180 lbs. from one hive in a poor season, and has frequently secured 100 lbs. He is satisfied with 60 lbs. per colony, but 30 lbs. or lower is a failure. Straining is the biggest problem he has to deal with—how to get the best results with the least muss. He uses a square can with a wooden frame fitted into the top, holding cheese-cloth, and above that a piece of wire netting three mesh to the inch. He uses a five-gallon can for mashing, and squeezed out between four-fifths and three-tenths of the honey, the amount depending on the length of time in waiting. The broken combs, placed in a dish-pan, he puts into the oven on the grate with a baking-tin

between this and the fire-box to avoid too great heat. He leaves it half an hour, and stirs occasionally. All of his best honey is treated this way.

For marketing he prefers to use one, five, and ten pound pails, and to sell from house to house. He cuts the combs flat on brown paper, puts three, five, or seven pieces, according to the size, into each pail; and then pours liquid honey over all of it. This should be marketed early to avoid candying.

"How I Cure Foul Brood, and Dr. Miller's Method," was the subject of a paper by A. W. Yates, foul-brood inspector.

Keep all colonies clean, and exercise great caution. Beekeepers should be educated about the symptoms and treatment. Italian bees are found to be the most nearly immune. Boiled honey can be feed with care, but sugar syrup is safer. Don't buy old hives or combs. Treat by shaking at night and during a honey-flow. Dequeening may be used also. August is the best time for dequeening and requeening. The disease will probably never be eradicated, but is often aggravated through carelessness and ignorance.

The most practical method of cure is by shaking into the old hive when the other hives are closed. Have everything ready before beginning. Take out two frames



Bee gloves and bee hat, the real thing.

and shake each frame into the hive, first putting a queen-guard on the front of the hive. Use carbolic acid to prevent robbing. Melt or burn all old combs, and burn the frames. If the colony is 20 to 25 per cent diseased, it is better to shake. The Alexander method modified by Dr. Miller—that is, dequeening and requeening—is all right in mild cases; but it is cheaper and safer to shake and burn the frames. The best time to requeen is when treating foul brood. American foul brood travels slowly, and is quite rare.

President Sherman E. Bunnell, of Winsted, presided. The secretary-treasurer's reports showed the association to be in a very prosperous condition, with a membership of 159, and cash on hand of \$109.33. This represents the high-water mark with the Connecticut association, with good

prospects of a steady and healthy increase. The officers were re-elected as follows: President, Sherman E. Bunnell, Winsted; vice-pres., Rev. D. D. Marsh, West Hartford; sec'y-treas., L. Wayne Adams, 15 Warner St., Hartford; executive committee, Lyman C. Root, Stamford; Stephen J. Griffen, Bridgeport; Henry W. Coley, Westport.

The secretary was directed to arrange for a two-day field meeting at the Connecticut Agricultural College in conjunction with the Connecticut Pomological Society, as it seemed that the members of two industries so closely allied should become better acquainted to the mutual advantage of both.

The association went on record, opposing, as dangerous, spectacular experiments with bees in public.

South Wethersfield, Ct.

SOME BEE STUNTS

BY J. D. FOOSHE

At our Georgia and Carolina fair I saw a man traveling with a carnival and constituting the midway of the fair. He was performing stunts with bees which would seem to contradict us in our observation of bees. While he did perform some wonderful feats, none of them could prove to a veteran that bees can always be handled as he handled them. In the first place, we all know that bees are always gentler and more

tractable in a house or tent than anywhere else. This man had a screen-wire tent about six feet square in which he operated. He is baldheaded, and has a hat with a wire around the inside to fit, so as not to let the hat come down on his head. He would scrape up bees with a paddle from a cloth and pour them into his hat, and carefully place it upon his head, but, of course, he was careful not to mash any. He would

also bounce a handful of bees and catch them as a ball; but all this performance came about by conditions, and not because his bees were gentler than any others. They were a fair sample of the three-banded Italians.

These stunts only go to show that persons from observation learn when they can handle the little pets with impunity. When I wish to extract honey I either use a house or tent, but recently a tent; and after getting my hives cleared of bees as best I can by shaking a frame I carry them to the tent and take off my hat and coat, and, as a rule, never get stung. I usually make a tent of mosquito netting about six feet square; and when done I take it down and put it away.

CONDITIONS IN GEORGIA.

I have been here about four years, and I have yet to see my first honey from asters and goldenrod. Where I moved from I nearly always secured a crop from this source. I do not know of any cause except a very dry atmosphere. Honey-plants will not secrete honey without moisture. Bees will work well on buckwheat here in the South, but I decided it did not pay for the honey. It blooms profusely, and bees work on it until about 9 o'clock; but I have observed that they gather more pollen from it than honey. It will not seed here unless some late; but when it comes to pollen, the ragweed has all the other plants beaten. It is the best pollen-producing plant that I know of, but has no honey.

Augusta, Ga.



Bees make a good chest-protector. Photographed by L. N. Gravely, Ringgold, Va.

DOES ALFALFA WITHOUT SEED GIVE NECTAR?

BY T. J. QUAIL

In a recent issue of GLEANINGS Dr. Miller says that he saw bumblebees working on alfalfa, and that the other bees were not working on it. While Dr. Miller is an expert beeman, I think he must have been mistaken; although the bumblebees may have been looking for honey. I have never known alfalfa to yield honey east of the Missouri River. Alfalfa blossoms that do not make seed, as a rule do not yield honey. I should like to know what the experience of other men has to present on the question. In Missouri I once saw a large field of alfalfa that was a mass of blossoms. The owner said he was expecting a heavy yield of seed, although there was not a bee to be seen on the blossoms. The owner harvested the alfalfa and started to thrash it. After

an hour's work with a big machine he did not get a pound of seed. Alfalfa and white sweet clover do well in central Nebraska, and often yield heavy crops of seed, although some years have very light crops. Alfalfa makes the best seed in dry years.

We often get 150 to 180 pounds of section honey per colony on alfalfa. In fact, alfalfa and sweet clover are the only honey-plants in this part of Nebraska. The bees get some honey in the early part of the summer from box-elder blossoms. We do not raise any clover or timothy here.

White sweet clover which has always been considered a noxious weed, is coming into the native hay-meadows along the Loupe and the Platte Rivers, where they are saving the seed. Farmers are now sowing

this so-called noxious weed for pasture and hay. A full carload of sweet-clover seed was shipped from a station in Nebraska last fall. One farmer in Nebraska sowed 600 acres in sweet clover last spring. Much of this land was sandy, and he got a stand of only about 300 acres. He will sow the other 300 acres in sweet clover this spring.

Bees generally winter well in Nebraska, either in the cellar or on the summer stands.

The cellars here are very dry—no dampness whatever.

The only drawback to beekeeping in Nebraska is a bee disease, not the regular foul brood. It will break out in a yard, and the bees do not swarm. It may last one or two seasons; and if the colonies are not requeened with young queens they become queenless and die out.

Miller, Neb.

TERM NOTES—COLLECTIBLE

BY ARTHUR C. MILLER

Look on the sunny (and funny) side of things. It is the happier way, and leads to success.

Hundreds of hives of bees were shipped to California by water in the winter of 1859. D'ye mind?

Perhaps, just perhaps, some of the things we beemen *know* ain't so after all. I'm talking about the other chap.

Brothers Holtermann and Crane are scrapping over an eight-foot line fence. Humph! A fence that high would keep most folks apart.

The predicted fun has arrived. Sixteen-inch covers on sixteen and one-quarter inch hives! They do not exactly "fit like a duck's foot in the mud."

Procrastination is the—say it your way if you wish—what I was going to say, however, was that Procrastination is the trouble-maker and crop-loser in the bee business. And you might impress it on your bees too.

"If the bees are getting honey abundantly the boxes may be set a foot or two from the entrance to the hive for the bees to leave them. Keep from the hot sun."—Quinby, 1860.

Nice mess caused by the difference of a quarter inch in depth of different makes of "deep supers." It gives one violent thoughts if not angry speech. When shall we get standardization of supplies?

So my friend Byer thinks candy-feeding a fad. Well, son, you have a chance to think again; but give it a good try first—the candy, I mean. Candy has sundry and several advantages peculiar to itself.

What's in a name? "Absorbent cushions," which must not absorb, but shall permit the passage and escape of moisture. "Call a spade a spade" instead of a "dirt conveyor," and then the poor innocents will stand a show of getting the drift of what you are trying to talk about. A really *ab-*

sorbent cushion over the bees would be a sure-enough bee-extermiator.

Those Californians seldom do things by halves. They voted "wet," and now they have had superabundant rains, which means a good honey crop and plenty of dilutant for the other "wet" things. Blessings never come singly.

I wonder if F. A. Hanneman "invented" the perforated zinc queen-excluder, or merely applied to the art of bee culture the perforated zinc long used for bean-sifting. The results are all right, so we won't quibble about terms or glory.

Louis Scholl got caught with 35,000 lbs. of comb honey on his hives in winter, stuck there by the mud. Some of the New York boys will envy him. Wonder if Scholl and others would not profit by turning some of their energy to a good-roads propaganda.

Complete equipment to save labor is excellent, if it does not cost more in upkeep and interest than the labor saved is worth. Just where equipment should be curtailed and labor be added is a mooted question which each one must decide for himself.

In ye olden time a split side stick, with the pith partly removed to form a trough, was filled with a mixture of ale and sundry other things, and pushed in at the hive entrance to feed the bees, to keep them alive and "to give them encouragement." Wonder what some of those old sages would think of the manner of its doing now.

Who invented comb foundation? Don't answer too quickly. Listen. "A gentleman just in from California informs us that in San Francisco there is just now no little interest taken in a process of casting the bottoms of the cells of honeycomb from old wax. He says the bees will go on and complete the cells, and that this process not only furthers their work, but secures regularly formed combs in any position in the

hive desired."—*American Agriculturist*, May, 1860, page 154. Wonder what any of the "old boys" of California can dig out for us on that?

Ever watch the bees trying to go through zinc or wire excluders? Tee hee! They claw the air like a bug on a pin. Funny, and yet one pities the poor little cusses. Two spaces (three wires) with the outer wires let well into the wood slats, and the slats nearer half an inch thick are different. Two rows of holes in zinc plus *thick slats* are also different.

It is pretty safe to say that most of us might lessen the labor item if we could see our work as others see it.

It is also safe to say that no small part of the labor-saving can be effected with the equipment we now have on hand, if we will only lay aside all prejudices and try the other fellow's ways until we prove whether they are any better than ours. It is barely possible that they may have a few kinks which are worth while.

Building up weak stocks, fussing with dwindling ones, getting queens into those with laying workers, and a whole lot of other things, seem like bugbears to all novices and to many an older hand. Does not all the bother and worry start with poor bee-keeping? And are not the text-books and journals somewhat to blame for laying so much stress on those problems? Annihilate all such stocks and prevent their occurrence thereafter, if you can, and you can most of the time.

Did I hear some one say "more ventilation needed," and some one else say "easier access to supers"? Um! Easy access?

Ventilation? And yet big colonies store up big crops through two holes of a zinc excluder. And there is a chap out west—I think it is Atwater—who uses honey-boards with solid middle, and only a row of holes near each outer edge. But there, there! I didn't intend to ask any awkward questions—oh dear me, no!

Dr. Miller is strong on large entrances. Some of the rest of us are also, but it took us quite a while to learn their value. If you try them, be sure to back them up with strong colonies just as the doctor does.

Food for bees is pretty much the same sort of question as food for other creatures. The answer is modified by such factors as time of year, time at operator's disposal, results desired, strength of colony fed, utensils at hand, etc. Syrup is best at one time, soft sugar at another, and candy at another. Soft sugar calls for the least work, syrup next, and candy most, so far as preparing the food is concerned. Syrup is less economical than candy or soft sugar, and the two latter are about on a par. Soft sugar is not in convenient form for winter feeding, but candy is. A thin slab of candy can be laid on top of the frames at any time, but syrup and soft sugar call for feeders of some sort.

Pshaw! What is the use of enumerating further? Go try them all, and you will soon use one for one time and purpose and some other at another. You will never entirely abandon any of them—unless you get into one of those "poor locations" of Illinois where they get an average of only 266 sections per stock.

Providence, R. I.

MICHIGAN JUBILEE ANNUAL MEETING

BY F. ERIC MILLEN
Secretary-treasurer

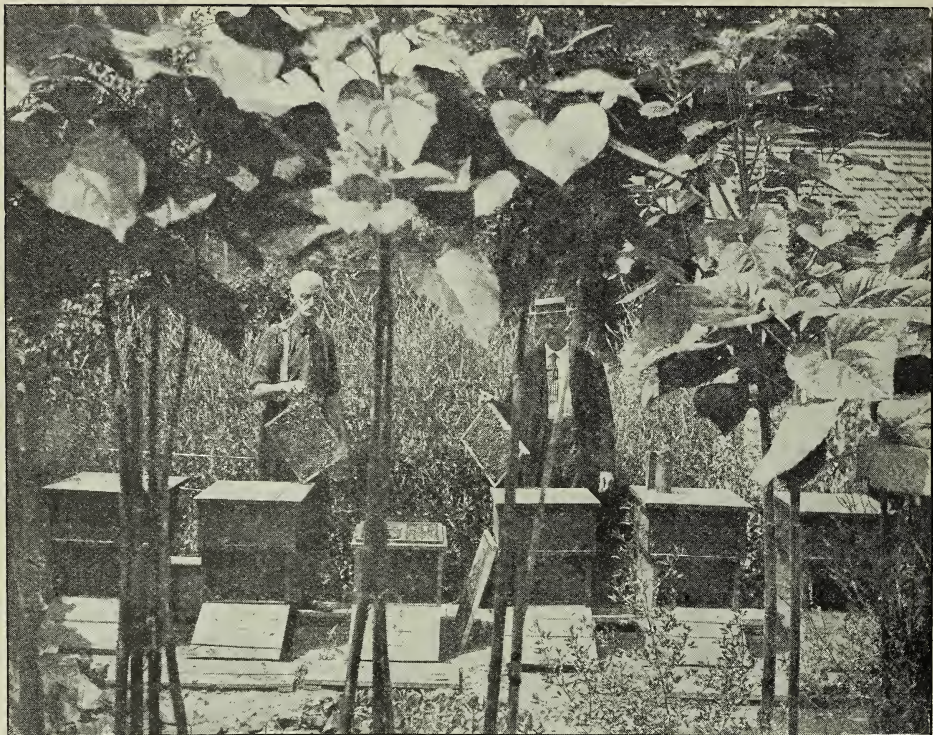
The oldest beekeepers' association in the United States will celebrate its fiftieth anniversary at Grand Rapids, Michigan, December 15 and 16.

The original records of the association, still in good shape, show that Professor A. J. Cook, now State Commissioner of Horticulture for California, was the first secretary of the association. At that time Professor Cook was connected with the Michigan Agricultural College, East Lansing, Mich., teaching entomology and apiculture. For over twenty years since Professor Cook left, beekeeping has not been taught at the college; but in 1913 I had the pleasure of

introducing the subject once more. It is a coincidence that the present secretary of the association, after so long a lapse, is connected with the Agricultural College, trying to disseminate the subject of beekeeping, as was the original secretary.

Looking over the records we find the names of many prominent beekeepers who have since gone to their reward. Among others these names are found: Ezra Rood, the first president; Bingham, Gallup, Otis, Taylor, Hilton, Hutchinson.

In one of the early meetings I find that a paper was read by the secretary on "The Apiary and its Arrangement," by A. I.



A partial view of the apiary of John R. Powers, Shellburne Falls, Mass.
Mr. Powers stands at the left in the picture.

Root ("Novice"). I wonder whether Mr. Root can remember this paper. Besides Mr. Root's, many other names are prominent—one other, who is still alive, Mr. M. M. Baldrige, who read a paper on "The Extractor."

We hope to have many old memories revived at Grand Rapids, so that we present-day beemen may get a glimpse of what the pioneer beekeepers had to contend with.

The association is trying to arrange a meeting that will be a little out of the ordinary; and, with the co-operation of the

Michigan beekeepers, this should be possible. We aim to make a special effort to get a good exhibit of honey; and any beekeeper who would like to make an exhibit would do well to write me. By making plans at this time the choice of the crop can be saved and a nice exhibit prepared.

We shall be pleased to receive the dues of any members who have not paid, and from others who would like to join the association. In a future issue we shall have more to say.

East Lansing, Mich.

PLANTING SWEET CLOVER FOR BEE-PASTURE

BY E. M. NICHOLS

Mr. John R. Powers, the village beekeeper of Shellburne Falls, Mass., plants sweet clover for his bees. The clover shows in the background of the picture. Seed was planted several years ago, and comes up each spring. The plants are very thrifty, and average in height about six feet. Compared with the height of the men, this does

not seem to be the case, but the illusion is due to the fact that the men are standing on a raised platform.

I have grown a little clover myself for the bees, and find it worth while for that purpose alone. It yields honey for a long time, and is particularly valuable for the queen-yards.

Lyonsville, Mass.

THE ISLE OF WIGHT DISEASE

BY GEO. W. BULLAMORE, F. R. M. S.

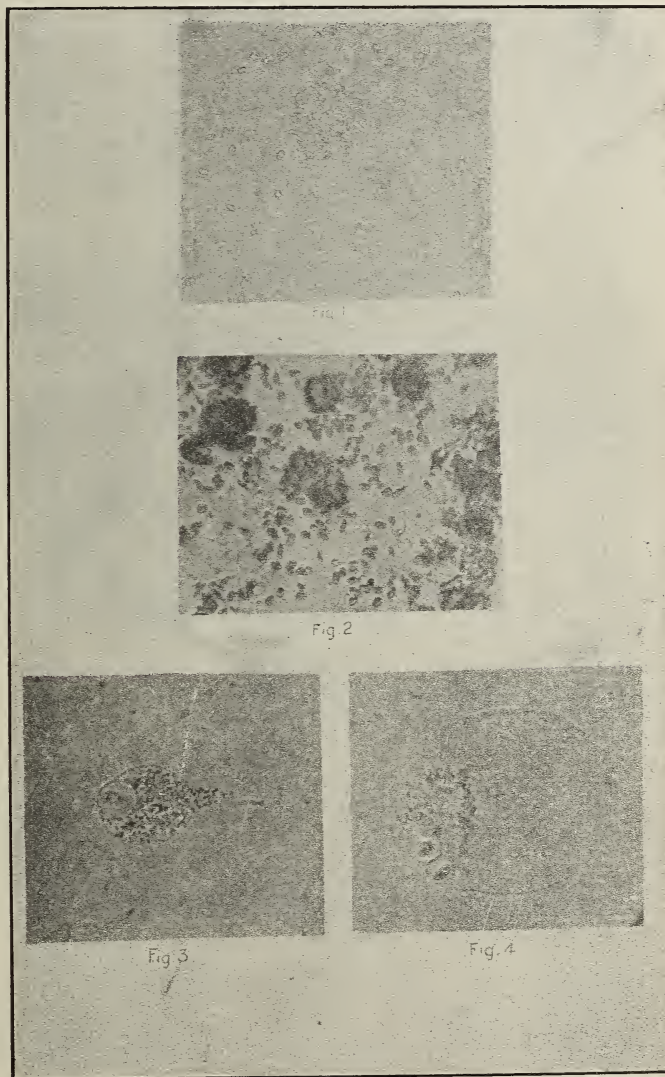
An attempt has been made to represent the Isle of Wight disease as something new; but the literature of beekeeping in England affords evidence that a disease similar in its effects has from time to time ravaged the apiaries of this country. Letters written to the press during the exceptional mortality among bees in the early 'sixties of the last century describe symptoms identical with those of the present epidemic, and also show that the trouble then had been known for years as a peculiarity affecting the beekeeping in certain districts.

The Italian bee and the bar-frame hive were both introduced here in 1859, and trading in bees followed. There is little doubt that this trade has much to do with the severity of modern epidemics.

Much "beekeeping" in this country is less concerned with keeping bees than in persuading others to do so. Accounts of losses were therefore suppressed owing to their discouraging tendency. An Isle of Wight beekeeper was the first to break through this conspiracy of silence, and, as a consequence, the disease became notorious as the Isle of Wight disease.

I have read thousands of descriptions by other beekeepers, and have observed many cases myself. Beyond the death of large numbers of bees no symptom is present invariably. While confined to the hive by severe weather in winter the bees drop dead in a heap on the floor-board. In milder weather they may crawl out

and die on or near the alighting-board, which is sometimes soiled with light or dark signs of dysentery. At seasons when much activity prevails among the bees death may occur while they are out gathering. The dying bees may then be found under flowering trees, on blossoms in the fields, or crawling about on roads and paths. The symptom that usually attracts attention is numbers of crawling and dying bees in front of the



Micro-photographs of *Nosema*. Reproduced by permission, the Board of Agriculture and His Majesty's Stationery Office.

disease in 1911, by black circles. The apiaries marked as concentric circles were apparently healthy in 1911, and four were removed from the district. Of the remaining eleven apiaries ten developed disease in 1912.

Bees which wander to other hives are probably the chief agents in spreading the trouble. Stocks in high trees, roofs, etc., being out of the line of flight of stranger bees often escape for a time. It will be seen by the map that stocks in the open suffered before those surrounded by fir-trees. Bees are more likely to fly around a wood than through it.

Some facts tend to disprove the view that frames and hives carry the disease. But it is impossible to imagine that an organism that is passed from bee to bee is not sometimes transferred indirectly by the agency of combs, etc. The explanation may be that, when parted from its host, the causal organism quickly loses its virulence or even its vitality.

Drug treatment is a waste of money; but, owing to the fluctuations of the disease, any quack remedy can obtain testimonials.

Stocks of foreign origin sometimes survive when the native bees die off rapidly. This tolerance or immunity is not absolute; and on the Isle of Wight, where the disease menace was constantly present, Italian and other foreign races died. To what extent this seeming immunity can be utilized for restocking is not yet known. In my own apiary all native blacks died out, and the

sole survivor of them was an Italian stock. Beekeeping can still be carried on, but will be in the future a matter of experience rather than dogma. It is too late now to attempt to stamp out the trouble. Owing to the manner in which the disease progresses before showing itself it would be necessary to destroy the stocks for several miles round any outbreak, with the result that these denuded areas would overlap and cover practically all beekeeping districts.

Statements regarding Isle of Wight disease made in *GLEANINGS* for controversial purposes should be received with reserve. John Smallwood (1914, p. 56) suggests that the disease is abating in Oxfordshire. The season of 1913 was there marked by heavy losses; and when his article appeared Oxford and district was practically cleared of bees. W. Herrod, p. 58, 1914, says, "Neither queen nor brood is affected, because their food . . . does not contain the germs of microsporidiosis." This is the scientific name for the nosema disease, because nosema is a protozoon belonging to the *Microsporidia*. Nosema has been found in queen bees by both Zander and Maassen in Bavaria, by Nussbaumer in Switzerland, and by Dr. Graham-Smith and others in England, as stated in the Report of the Board of Agriculture. If infected food is necessary to produce infection in queens, then I fear there is no alternative but to consider that digested food may contain "the germs of microsporidiosis."

Albury, Herts, England.

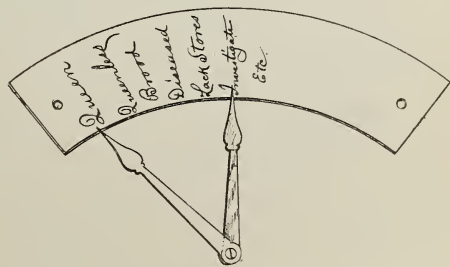
A NEW COLONY-RECORD SYSTEM

BY W. E. WOODRUFF

Like most beekeepers who run outyards I have found it difficult to keep tab on the condition of my hives and to remember what each needs. The card-index and notebook systems are too fussy for extensive work, while placing brickbats and other signals in certain ways on the hives is out of the question where one handles a number of colonies.

It occurs to me that a simple device, and one that would prove to be both inexpensive and permanent, would consist of an aluminum strip made in a semi-circular form and bearing numbers up to, say, ten, or, better still, having raised letters or words on it indicating the condition of the colony when last inspected. The following sketch will better suggest my idea. A pointer, or possibly two, should be tacked at a

point where they could be moved to the word or figure indicating the condition of the hive. In case numbers were used, the



apiarist would, of course, have to memorize a "key," so they would be intelligible.

Cottonwood, Ariz.

COMMENTS FROM THE COTSWOLD HILLS

The Value of Shelter in the Beeyard

BY A. H. BOWEN

A well-sheltered apiary is a great asset to successful beekeeping. Not only do the bees winter better and with less loss where the hives are adequately protected, but brood-rearing is started full early, and colonies will build up almost twice as fast as they do in an exposed apiary where there is little shelter from the elements.

On the Cotswold Hills we think the ideal location is a clearing in a plantation or spinney, where the undergrowth around is sufficiently dense to break the force of the wind and render the air warm and still, even in the chilly days of winter. With the hive facing south they

catch the full rays of the sun, and in the spring the bees can visit the water-trough or box of pea flour with perfect safety.

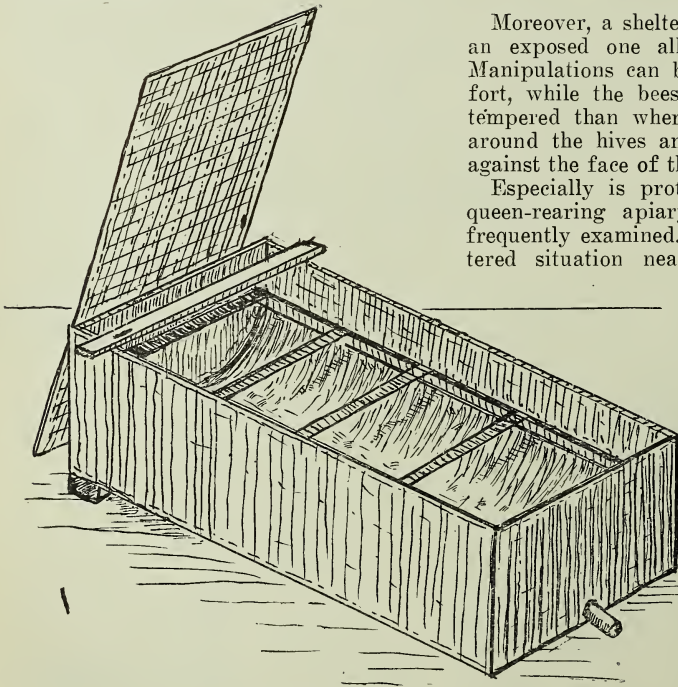


A sheltered nook within a copse the ideal location.

Moreover, a sheltered apiary is ahead of an exposed one all through the season. Manipulations can be carried out in comfort, while the bees are invariably better tempered than where a breeze is blowing around the hives and driving the bee-veil against the face of the operator.

Especially is protection necessary in a queen-rearing apiary when the bees are frequently examined. Furthermore, a sheltered situation near the apiary affords an opportunity for the mating of queens in restricted mating weather, when the outside temperature is low or a strong breeze is blowing.

Shelter is so important that, in starting a new apiary, I would certainly give the preference to a well-protected spot. The cut gives a good idea of an English apiary with a natural windbreak.



Simple uncapping-box.

A SIMPLE UNCAPPING-BOX.

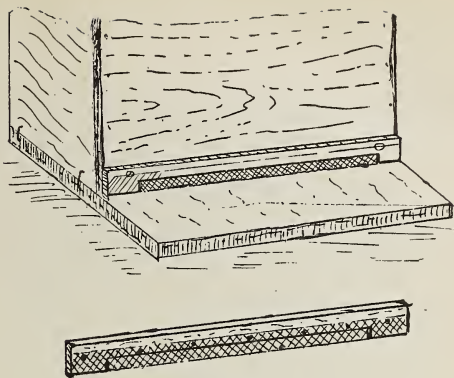
I have designed an uncapping-box well suited to the needs of smaller beekeepers who work only a few hives. It fills all the requirements of a good box, and at the same time is simple and easy to construct. The illustration makes this plain.

It can be made from any drygoods-box, measuring about 30 inches long, 15 wide, and a foot deep. A piece of tin, 18 inches wide and as long as the box inside, is bent to form a trough which rests on the bottom of the box, the sides being made secure by nailing along two strips about half way from the top edge. This also gives support to five lengths of stout hoop iron upon which is laid a screen of large-holed perforated zinc for the cappings to drain.

The box is slightly raised at one end, so that the honey readily flows down and out of a one-inch hole at the opposite end into a tin placed underneath for the purpose.

When the cappings have thoroughly drained they are taken out and set aside ready for melting into wax.

The second sketch shows a device for confining the bees when hives are being moved. From a strip of wood 3 inches wide and the length of the entrance a piece



Device to confine bees en route.

is cut out of one side about an inch deep. Next a strip of perforated zinc or wire cloth is tacked along to cover the portion cut away. In order to confine the bees the guard is fastened zinc side inward to the hive front with two screws.

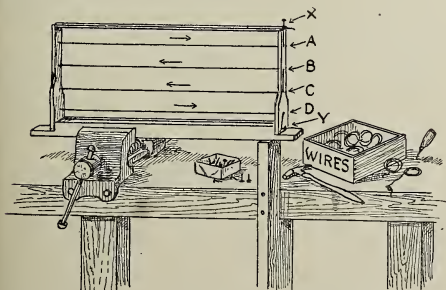
Such an appliance saves a great deal of time and many stings when preparing bees for shipment, and is much simpler to fix than the old type of "push-in" guard of wire cloth.

Cheltenham, Gloucestershire, England.

SPECIAL METHOD OF WIRING FRAMES

BY J. S. TAYLOR

With my method of wiring frames I can do as many as fifty an hour, although that leaves no time to spare and not many snarls to undo. Forty or forty-five are quite easily done, and, best of all, with not one-tenth the tedium of the old way. I find it hard to believe that this or some better method is not in use by the large beekeepers.



My method, in brief, is as follows: Start wire at hole B, then back through hole A; hitch it around the nail X, and drive the

nail home. Take the other end through C, then back through D; grip it with the pliers in the right hand; hitch it around the nail Y, and drive it home. Break off the surplus wire and release the frame from the vise with the left hand.

In nailing frames together I always leave the nails X and Y projecting about a quarter of an inch. I also run off the wire, cutting to length, without straightening too much or taking the coil out. The wires will recoil very nicely as a rule, and lie flat in an empty foundation-box.

Any vise will do. Note the small support for the end of the frame. This gives a solid rest for driving home the nail X. The vise takes the shock of driving the other nail.

As for the final drawing of the wire to the desired tension, I presume the reader will see that, with the pliers held in the right hand, and using the left as shown in the A B C, one can draw the wire as tight as a fiddle-string, provided the frame is firmly held in the vise.

Richwood, Ont.

WANTED—SOME BEEKEEPERS

BY W. J. ROUNDTREE

Referring to your editorial, page 260, March 1, "Beekeeping in the Great West," I want to say that we have here some virgin territory that is practically untouched. There are thousands and thousands of acres of alfalfa on irrigated lands, and sweet clover on all the roadsides and ditches, all wasting its sweetness on the desert air. It is not everywhere that additional beekeepers would find a welcome; but I would welcome some additional beekeepers here in Wyoming for the following reasons:

Beekeeping is in its infancy. There are only a few small producers with from 30 to 50 stands. We produce more honey than the local market will consume, but not enough to make a combined shipment of a carload. Freight rates are such that we cannot ship in any other way.

This territory is irrigated by a government canal known as the Pathfinder Project, which waters some 150,000 acres of land in the valley of the North Platte, in eastern Wyoming and western Nebraska. I hold no brief for the people of Nebraska, and do not know whether they would welcome more beekeepers or not; but here in Wyoming there are over 30,000 acres of alfalfa land in which I do not think there are 200 colonies of bees. Neither have I any bee locations to sell nor any ax to grind, except that personally I should like to see enough honey produced so we could ship to market in car lots.

The altitude of this valley is 4200 feet.

The climate is about that of Colorado. The land is particularly adapted to growing alfalfa. Sweet clover grows whenever it is permitted to establish itself, but is not cultivated as a crop. These are almost the entire sources of nectar. The honey is as fine as can be produced anywhere.

Winters are usually bright, dry, and not excessively cold. My bees winter in single-walled hives without protection, and so far my loss has been insignificant. Without having investigated the matter enough to say positively, I think locations can be secured up and down the river from Old Ft. Laramie to the state line. Possibly, also, below in western Nebraska.

So far we produce only comb honey. The percentage of increase in Wyoming has been very large in the last few years. There are no expert beekeepers among us as yet, and I do not know just what the yield is per colony. The government, I believe, gives it at 75 lbs. At Wheatland, in Platte Co., they have shipped a carload for the past two years; but that territory has been settled longer than here. The past few years the cultivation of sugar beets has cut down the acreage of alfalfa somewhat, but still there are thousands of acres, and always will be, since the crop rotation here is sugar beets three years, and then back to alfalfa again. I think there is a great future here for the bee.

Lingle, Wyo.

CATCHING AND CLIPPING QUEENS

BY E. S. MILES

Presuming that all up-to-date beekeepers, and all beginners who wish to succeed, practice clipping, and that some may not have a satisfactory way, I wish to give my method. While, doubtless, there may be better ways, if any one is not satisfied with his present practice let him try this one.

Queens are clipped primarily to prevent swarms lodging in tall trees and other inaccessible places; but I would clip so as to know absolutely without mistake the age of my queens, even if there were no other reasons. I want longevity in bees, and it seems reasonable to me to expect it from strains whose queens live long rather than from those whose queens are shorter lived. There may be other ways to mark queens; but as this is easy, effective, and at the

same time gives a chance for absolute control of the colony, and, so far as my observation goes, does no harm, I think it advisable and profitable.

When I started clipping I caught the queen by the wings with the right hand and held her with the thorax between the thumb and first and second finger of the left hand while clipping. It made me rather nervous to hold her this way, as I was afraid I might squeeze her too hard. At this time I happened to read that the bees would be more likely to attack and kill a queen held in the fingers, on account of the strange scent left upon her, and that the only way was to clip her as she walked on the combs. I wish that writer had told us to try it on drones or workers for a dozen times or so

first, for I tried it at once on a fine \$2 tested queen. Well, I clipped her all right, but not the wings; and I voted that way too expensive for me. So, in thinking the matter over I hit on the following way which I have liked well enough to continue ever since. I never have a queen lost from clipping.

To clip now, I open the hive as carefully as possible, so as not to alarm them, as it is easier thus both to find the queen and to catch her. When the queen is seen I set the left-hand end of the frame on the edge of the hive, or, more frequently, on my left knee, as I always sit when clipping, thus freeing my left hand. Catching the queen by both wings with thumb and fore finger of my left hand I set the comb back in the hive by letting the free end down until the projecting top-bar comes to the rabbet, then lower the end I have hold of till the bottom of the frame rests on the other end of the hive, the frame thus hanging in the hive at the left end, and projecting out at the right end. I now take the shears, which are laid somewhere convenient to my right hand, and lower the queen until her feet touch my left knee, when she grabs hold and begins to pull; and as soon as her legs are thus engaged, and out of the way, I slip the point of the shears over whichever part of either wing I wish to cut, and just a second glance to make sure her legs are on my knee—snip! and she is clipped, and running around on my knee, while the only part I have touched is between my thumb and finger.

I immediately set the point of the scissors down flat across her pathway, and, as she starts to crawl over them, I quickly transfer her to the top of the frames she came from. If she starts to run up the scissors I take them in the left hand, if necessary, to prevent her reaching my right hand before she is over to the comb; and it is a good idea to hold your free hand under her in case you should drop her off.

A little practice, however, will enable one to clip very quickly, and without touching the queen. As to her running on my knee, it is covered with propolis where I rest the

frames while catching the queen, so it is hardly likely she will get any hostile scent there. At least I find this entirely satisfactory; but one could rest her while clipping on a piece of board held across the knees if he prefers. Any kind of fine-pointed scissors that cut well at the points will do to clip with.

After clipping, close up the hive as quietly and quickly as possible. A young queen just commencing to lay is much more "scary" about being caught than an older one.

There is a little knack, also, in getting hold of a queen by the end of her wings. I am not sure I can describe it so it can be understood, but I'll try.

Most queens, when the fingers get close to them, take alarm and begin to run one way and another; and if you follow up they usually get very much alarmed, especially young queens. Now, if you try to grab a running queen with finger and thumb apart, you stand a good chance of striking her body, and perhaps injuring her. The way I do is to get her, or let her get, with her head up, and slightly away from where the fingers will be when I take her, and hold my hand as near her as I can without making her run. When I consider her in a favorable position I slip my hand quickly up to her with my thumb and fore finger tightly together; and when the points of them are close to her wings I roll my thumb and finger ends together by crooking my finger and thumb slightly, thus rolling the edge of my thumb and finger on to her wings with a sort of rolling or pinching motion. Without opening them apart I avoid danger of grabbing the queen's abdomen.

Practice on some drones, or young workers, and the knack will be acquired easily. In clipping, always handle combs quietly without jarring, and do nothing to frighten the bees. Keep cool yourself, and don't be nervous. If you cannot do this a little practice on drones or workers may help. It is perfectly simple and easy after you have had some practice.

Dunlap, Iowa.

HIVING AND CARING FOR RUNAWAY SWARMS

BY JEAN WHITE

It sometimes happens that a runaway swarm of bees settles in a spot where it might easily be hived if one knew how to go about it. If one does not know, the swarm will fly again when its scouts return, and

locate in a hollow tree and be lost forever. The process of hiving is simple enough so that any one might safely perform it; but often a novice with bees has not the courage. Bees settle most often on the branch of a

tree, although not always. They have been known to settle on almost every known thing that would offer them a chance to hang. If they settle on something where the swarm is pendulous, and not too high up, the process of hiving is very simple.

Protect the head with a veil, being sure it is well wrapped about the neck and stands away from the face somewhat. Any good-sized hat-veil will do, if tied around a hat with rim enough to hold it away from the face. Protect the hands with loose kid gloves and tie the sleeves over the wrists; for if a bee starts up your sleeve or down your back you will attend to nothing else for a time, very likely. Get a good big pail with a bail; and, holding it under the cluster, pull them carefully off the branch into the pail. A box will do, but is not so easily handled. Having them in the pail, cover them over with a thin cloth tied down, and get a hive ready. They may remain in the pail or box for some hours, or even over night if the cloth covering is thin enough to admit plenty of air. Mosquito netting is about right; but cheese-cloth will answer. If possible to find a modern hive and some foundation, put strips of foundation along the edge of the frames. Set the hive on some kind of firm support that will raise it a few inches from the ground, and face it toward the south or east, so that the early morning sun will warm the entrance. Place a board close up to the entrance; cover it with a white cloth; and when all is ready empty your pail or box or bees out upon this cloth-covered board close up to the entrance. Of course you will want to wear a veil and gloves to do this. Usually they will begin at once to crawl into this new hive-entrance. If they do not start, brush a few of them lightly toward it. After a few of them have gone in, the others will follow in a steady stream until all are in. With frames and starters of foundation they will not come out, but at once establish themselves and proceed to their business of building brood comb in which to rear a new crop of bees.

If no hive is to be had, a box may be made to answer, although, like all makeshifts, it is not so good. A box about twenty inches square and from eight to twelve inches deep may have the bottom removed. Saw out an entrance about six inches long and half an inch deep. Find a bottom-board that will allow of a four or five inch margin all around, and, having set this on something to raise it off the ground a few inches, turn the box with entrance down and toward the east or south upon this bottom board. You will have no frames or founda-

tion unless you manufacture frames, which you will hardly care to do. Make a cover for this box that will fit down tight, but that can be easily raised. Place inside a few lumps of sugar, and cover with a piece of oilcloth, as the box will hardly be waterproof. Let the oilcloth (an old table-cover will answer) project a couple of inches all around, and then place the cover, and weight it with stones or old iron so that the wind will not blow it off. Your house is now ready for its occupants. Proceed as with a new hive.

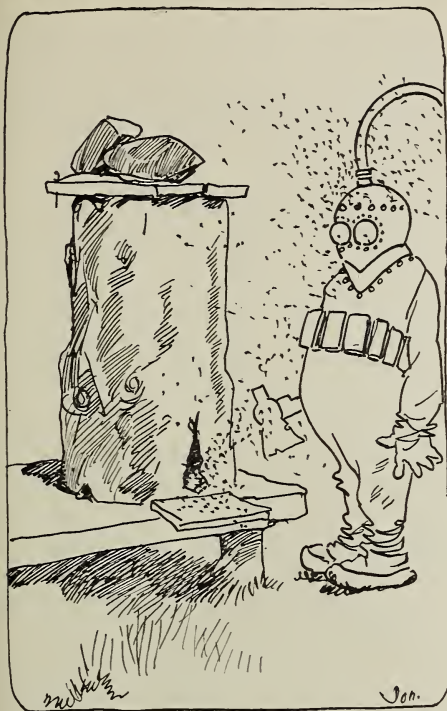
It is well to watch them for a few days to look out for signs that they are not satisfied with their new home. If they are, you will hear only a mild hum. The field bees will be busily going to and fro, and there will be a constant succession of little pollen-carriers going into the hive with their pollen-baskets so loaded with yellow pollen as to make them very awkward about crawling into the hive. This shows that they have begun work on their comb, and will stay. Should these pollen-carriers be absent, and the hive noisy and excited, with bees clustering around the outside, they will be quite likely to come out and seek other quarters. Sprinkling them with a fine spray of water will usually quiet them, and they will not come out if there is a big noise about. Putting lump sugar at the entrance, and covering them over with a screen, will induce them to get busy at home; and once they begin work they will remain. They seldom come out after the second day.

If it is early in the season, and the swarm a large one, they will want a chance to store surplus honey, or they will cast a swarm which is not desirable so late. As they must first build brood comb there will be plenty of time to get a super or a shallow body for extracting honey with frames and starters of foundation. It is best for a beginner to buy a body all prepared. After that one will know how to prepare one himself, and the expense will be somewhat less. In a home-made hive the bees having no frames or starters will build their comb very irregularly. They will winter all right indoors in this, however, if they have plenty of food. Take them in at the first hard frosts, and store in a dry cool cellar; and if it is not dark, shade the hive and entrance.

I got my start with bees from a swarm that settled on a shade-tree in the yard. I have had a good deal of enjoyment, some honey, and an increase of bees since then, and am very much in love with the work. Bee literature is as fascinating to me as the most enthralling novel.

Glover, Vt.

Heads of Grain from Different Fields



The Backlot Buzzer

With courage and a divin' suit 'most any feller can pull the teeth of an old-fashioned bee gum.

Some Factors Governing Stimulative Feeding

Dr. C. C. Miller:—I have been thinking about this question of stimulative feeding a great deal, and I have wondered if there is not an explanation somewhere as to why some say it is entirely wrong, and others claim it to be the only thing.

My experience has been that, when the bees have plenty of sealed honey in the spring, they will raise all the brood they can cover. This is all I care that they should have. But now I am told that if a cold spell should come, and the bees have plenty of sealed stores, but none unsealed, they will starve the brood before they will uncup any honey, even though their combs are half full. Now, if this is true it seems that it would pay me, to feed every colony some syrup when a cold spell comes in spring to make sure that none was without unsealed food. Of course, if the bees had gathered honey in advance it would not be necessary to feed. Then the large beekeeper with scanty spring pasture and danger of cold spells is the one who would profit by spring feeding. I believe that those who claim they profit by stimulative feeding in spring do not gain by stimulating the bees to rear more brood, but by getting them to keep what they already have.

Elroy, Wis.

OSCAR RITLAND.

[Dr. Miller replies:]

I don't know all about it, but I can tell you how it seems to me. According to your view the argument for the advantage of stimulative feeding is

that "if a cold spell should come, and the bees have plenty of sealed stores, but none unsealed, they will starve the brood before they will uncup any honey, even though their combs are half full."

What testimony have we in regard to this? Here is one item that may have a little bearing: I have often seen, in the fall, eggs in the hive and no unsealed brood, with abundance of honey in the hive; and I think this is a more common condition than is generally supposed. It seems to show that at least sometimes there may be plenty of stores in the hive, the queen may be laying, and yet no brood will be developed from the eggs, and of course no larvæ fed, because no honey is coming in at the time. I have also known other times when the bees continued to rear brood, although for a number of days no honey had been coming in. This latter was in the early part of the year—not in the fall.

So it would appear that the season of the year is a factor in the case. Perhaps a stronger proof of this lies in the fact that it is not an uncommon thing for brood-rearing to be started before bees are brought out of cellar, when, of course, no honey is coming in, and at a still earlier date in colonies wintered outdoors; while it is well known that it is very difficult to start brood-rearing with any amount of feeding late in the fall.

It sometimes happens in winter that bees use up all the stores within reach, and starve or freeze with plenty of stores in the hives. But this happens only in a prolonged cold spell, for bees are provident creatures: and when they have used up what stores are within reach, unless it is too cold for them to stir they make it their first care on finding the nearby stores exhausted to bring a fresh supply from more distant combs, or else to move bodily to them. Moreover, I think they are not merely satisfied with sealed stores; and I am not sure I ever found a case when, if they had any honey at all, there was not a goodly store of unsealed honey in the middle of the cluster.

Now, keeping all these things in mind, and remembering that stimulative feeding is practiced, not at a time when bees are marooned with the cold, but when they are free to move to any part of the hive, does it look reasonable to suppose that with honey in the hive bees will let brood starve at a time when they are naturally most inclined to brood-rearing? I do not say that it never happens; I don't know; but I do say that in an experience of more than half a century I never knew it to happen with my bees.

Incidentally you raise the question why some think stimulative feeding entirely wrong and others claim it to be "the only thing." That's easy. Notwithstanding the strong inclination of bees to rear brood early in the season, a dearth will stop brood-rearing if the dearth continues long enough. In places where this occurs, which I think are exceptional, stimulative feeding is "the only thing," while in other places, such as mine and almost certainly yours, it does no good and may do harm.

Marengo, Ill.

Doubled-up Nuclei Not Wintering Well

In regard to the wintering of bees in this locality, there has been a wide variation. I have visited perhaps a dozen beemen, and find where there was a fall flow of honey or where bees were located in a basswood belt the colonies came through the winter very well with but little loss. Buckwheat having been a failure last fall, most bees suffered as there was little if any brood reared after August 1. Our own loss was 8 to 10 per cent. This loss was chiefly among nuclei which were doubled up late in the fall. We did no feeding at outyards last fall, and the loss

here could have been avoided in almost every case by liberal feeding; but sugar was rather high, and we thought we would risk them.

There are many colonies which wintered in the ordinary eight-frame dovetailed hive with no packing whatever. In many cases these unpacked colonies seem to have wintered better than those heavily packed on all sides and top. It is beginning to bother us to know whether to pack or not. In one of our outyards we had a colony in an old-fashioned chaff hive. This hive got badly wrecked by stock after our last visit. It contained no chaff, and the sun could shine in on the bees when we found them. The bees were flying from all four sides at the top of the hive, but the combs were nice and dry, and the bees themselves in the best of condition.

Bellevue, O., April 20.

H. G. QUIRIN.

[We have observed a somewhat similar state of affairs in and near Medina. We find this, however, that the main cause of bad wintering is uniting up nuclei in the fall, pulling out pounds of bees from the colonies during the season, taking queens away from them, and otherwise disturbing the normal trend of the colony. In fact, general queen-rearing operations, the filling of orders for bees and queens, so demoralizes an apiary that it is in very poor condition to go into winter quarters. While these nuclei can be united they do not seem to get together in such a way that they will winter well nor come out in the spring in good condition. On the other hand, colonies whose brood-nests have not been tampered with, and which have been left through the entire season, and only the upper story or super taken off with honey, seem to winter well whether in double-walled or single-walled hives. But we notice this: That the same colonies in double-walled hives are a great deal stronger than those in single-walled hives. In one apiary where we found a large number of colonies had wintered in eight-frame single-walled hives they came out in very good condition.—Ed.]

Apiary Demonstrations in Ontario in 1915

Arrangements are well advanced for the apiary demonstrations to be conducted throughout the province of Ontario this coming summer. The increased attendance of this last year indicates the great interest that is being taken in this line of work. In all, fifty-five demonstrations, with an average attendance of thirty-four, were conducted this past season. The whole apiary and the beekeeper's equipment is placed at the demonstrator's disposal, giving him excellent opportunities to illustrate with the actual objects many of his remarks.

The demonstrator has complete charge of the meeting. Usually he starts by a short talk on foul brood, then proceeds to the apiary and examines several colonies. If the disease is found, a colony is treated. Suggestions are offered on many minor details that present themselves as the hives are being opened. Special attention will be paid to wintering. Models of the four-hive wintering-case will be supplied the demonstrator. These will form a new factor of the meetings.

Final arrangements are yet to be made; but ample notice, both by post card and newspaper announcements, will be given later.

G. F. K.

Beet and Cane Sugar Give Equally Good Results

As I stated some time ago, my bees were fed heavily last fall on sugar—some altogether on cane sugar, some altogether on beet sugar, and some half on cane and half on beet sugar.

I have not had time yet to make an individual inspection; but from casual observation there appears to be no noticeable difference due to the different food. Out of 180 colonies after 144 days in

the cellar, up to date only three are short and these proved to be queenless.

The hives all came out clean except one, and are in good condition. This one had no beet sugar. Three-fourths of them were heavy enough to winter again when they were taken from the cellar April 7. The first week was pretty cool, with freezing nights; but since then the weather has been ideal, and the bees have done well on soft maple, elm, plum, and dandelions, which are beginning to bloom now.

The clover wintered perfectly, but is in need of rain, as it is getting very dry.

Union Center, Wis.

ELIAS FOX.

Granulated Sugar Successful as Bee Food

In reply to one of Dr. C. C. Miller's Straws, page 219, I believe the Germans are wrong in holding that sugar is deficient as a bee-food, and we are right. Many years ago I used to get late swarms of black bees that were to have been brimstoned, and by uniting two or three of them make a strong colony, putting them on empty combs that contained very little pollen. I waited long enough for them to have but one queen. I killed that queen and gave them an Italian. At the same time I fed them up on good thick granulated-sugar syrup, as I had no honey for them. Then I packed them snugly with chaff. They would winter well, and would rear very little brood until they began to gather pollen from the swamp willows. Then they would rear brood rapidly, and be ready for upper stories as early as other colonies that were wintered on honey. They never showed any signs of disease or spring dwindling.

Humberstone, Ont.

ILA K. MICHENER.

Climate of Lower British Columbia

Beekeeping is only in its infancy in British Columbia as yet, but seems to have a promising career before it. I might mention that we are in the Fraser Valley, on the south side, about half way between the Fraser and the international boundary, and about thirty-two miles southeast of Vancouver. We have had no snow this past winter, and very little rain. Two cold snaps, each lasting a couple of weeks, one in December and one in January, brought frosty nights with about 16 degrees of frost and brilliant sunny days. The rest of the winter has been very mild and springlike.

Everything is coming forward rapidly now. There is practically only one month in the year when there is no bloom in the gardens, as there are always some late roses in bloom at Christmas. In February the spring bulbs begin to bloom. The bees around here are wintered out of doors in single-walled hives. There is an immense amount of fireweed growing at the edge of the bush about a mile south of us, and the garden raspberries do remarkably well here, growing to a height of ten feet and more in a season. It is so with clover and other blooms. There should be a fair amount of pasturage for bees here.

Langley Prairie, B. C.

H. G. DAVIS.

When is a Colony Strong?

The first thing to do in treating European foul brood by requeening or caging the queen is to make the colony strong. All seem to agree on this. Now the very important question arises, "What is a strong colony?" That is, what strength is necessary for success, and below what success cannot be expected? Ideas as to a strong colony differ widely. This word "strong" in this connection is exceedingly vague. I believe it would be helpful to have all who have had success with this method of treating European foul brood give some way of measuring a colony so all may know what is meant by "strong." Will authorities please tell us?

New Egypt, N. J.

E. G. CARR.

A. I. Root

OUR HOMES

Editor

Who is this uncircumcised Philistine that he should defy the armies of the living God?—I. SAM. 17:26.

Thou comest to me with a sword and with a spear and with a shield; but I come to thee in the name of the Lord of hosts, the God of the armies of Israel, whom thou hast defied . . . that all the earth may know that there is a God in Israel.—I. SAM. 17:45, 46.

Therefore the children of Israel could not stand before their enemies, but turned their backs before their enemies, because they were accursed. And the Lord said, Neither will I be with you any more, except ye destroy the accursed thing from among you.—JOSHUA 7:12.

I suppose most of our readers are familiar with this (in some respects) strange story told in the seventh chapter of Joshua. Under Joshua's administration the children of Israel were successful in their battles. I do not know but success had made them over-confident; but all of a sudden they failed. They were astonished and alarmed, and everybody was wondering what the cause of the trouble was. Their defeat was so disastrous we are told "Joshua rent his clothes and fell to the earth upon his face before the ark of the Lord, he and the elders of Israel, and put dust upon their heads." For once in his life Joshua seems to have complained. He says, "Would to God we had been content to dwell on the other side of Jordan." He urges, in his desperate prayer, that the inhabitants of the land would hear of it, and adds, "What wilt thou do unto thy great name?" But Jehovah rebuked him, and he arose. He says, "Wherefore liest thou upon thy face?" Our text tells us the *cause* of their disastrous defeat. I suppose you know the outcome. There was just one man in the crowd who coveted a fine Babylonish garment, two hundred shekels of silver, and a wedge of gold. Little did he think his greedy and foolish act was going to bring death and defeat to the whole army. Joshua, like a good general, had the culprit held up before the people, and he was punished as the Lord commanded, together with his sons and daughters.

Why do I bring this story in here? Let me tell you. Ever since the organization of the Anti-saloon League I have been wondering and inquiring in my mind *why* we should be thus defeated by the powers of evil. Why should the earnest and fervent prayers of God's people, of the W. C. T. U., of the mothers of our land, of the great and good men of our land, of our college professors, the teachers in our religious institutions, again and again be put to naught? For the past forty years or more I have told you of how the Lord has heard and answered pray-

er in personal work. Again and again has help come when I have been in tight places or crowded into a corner when there seemed no outlet. But when I have prayed that the Goliath of intemperance might be put down in the dust there seemed to be no answer. Men, women, and children—innocent women and children—who were in no way to blame, seemed doomed to suffer, not only for food and clothing, but for lack of education and everything else, and yet we were powerless. The enemy jeered at us, and they laughed us to scorn. They said in derision, "Did you with your few thousands think you could put us out with our millions—not only millions in money, but with the leading men of the nation *right under our thumb?*"

Perhaps that is a little hard and severe; but, dear brother, is it not true that the leaders in politics, even up to the President of the United States, did not *dare* to put a hand on the liquor-traffic? For years and years past our presidents, one after another, in their presidential messages have failed to recognize or suggest a remedy for the giant curse that is keeping down not only the American people but the whole wide world. Even I myself have been tempted *at times* to doubt the statement in holy writ that "there is a God in Israel." Why do we get answers to our prayers in everything *except* in regard to the liquor-traffic? Well, dear friends, of late I have been thinking it over, and I believe I have found the Achan, the "troubler of Israel," with his wedge of gold; and not only that, but *the eyes of the world* seem now to be centering on this Achan and his wedge of gold. I think I can point him out a little plainer by making an extract from a pamphlet just put into my hands, entitled "The Liquor-traffic; its Evils and Cure."* I wish every reader of GLEANINGS would send for this pamphlet. It is about the plainest and clearest showing-up of the liquor-traffic I ever got hold of. Here is the extract I make from it:

The saloon is defended for the revenue it brings to the national government, and no doubt many sincerely believe it to be advantageous to the government. This is palpably untrue. The liquor revenue law was enacted under the administration of Abraham Lincoln as a war measure, and signed by him with the distinct understanding that it would be repealed as soon as the exigency that seemed to justify it had passed. It was my privilege to hear this statement confirmed by Major J. B. Merwin, of Middlefield, Ct., who was present when Mr. Lincoln signed the bill.

* The above pamphlet is published by A. I. Truesdell, 101 West Wood St., Youngstown, O., at 50 cts. per 30 copies, or, say, 5 cts. for one copy.

In the presence of a large audience in Columbus, Ohio, in November, 1913, Major Merwin said in part:

"Mr. Lincoln hesitated in regard to signing that document, and said: 'I would rather lose my right hand than to sign a document that shall perpetuate the liquor traffic; but as soon as the exigencies pass, I will turn my whole attention to the repeal of that document,' and," said Major Merwin, "that was his design; that is what he said to me the last time I spoke to him, and he never would have signed it had he not had the promise of the members of the Senate and of the Judiciary Committees, and of the Military Committee, that it should be repealed at once, after the exigencies had passed."

The exigencies that called the law into being passed more than forty years ago, and during all these years our government has been in guilty partnership with this crime-breeding business.

In an important sense the government assumes control and says: No man may sell liquor without paying for the privilege, and no man may manufacture liquor without paying a stipulated price per gallon; and that there may be no cheating, the government carries the keys to the bonded warehouses and keeps account of all stocks manufactured. It takes this liquor—blood money—not primarily from the liquor-dealer, but—the greater part—from the poor, who earn it by the sweat of their faces and at the cost of shortened lives, diseased bodies, impoverished and unhappy homes, and all the added ills that overtake the victims of the drink habit.

It is a shame and disgrace to the American republic. There is not the semblance of an excuse for the continuation of this guilty partnership. When this liquor revenue question was before the English government some years ago, Hon. Wm. E. Gladstone, "England's grand old man," said: "Gentlemen, you need not give yourselves any trouble whatever about revenue. The question of revenue must not stand in the way of reform. Give me a sober population, not wasting their earnings in strong drink, and I will know where to obtain the revenue."

Russia now furnishes the positive proof that Mr. Gladstone was right—that revenue is increased by eliminating the saloon. Here it is:

LONDON, Jan. 27, 1915.—A dispatch to Reuter's Telegram Company from Petrograd says that Mr. Kharitonoff, controller of the Russian treasury, speaking before the Duma Budget Committee to-day, declared that, owing to the great increase in the national savings due to prohibition, the extraordinary outlay occasioned by the war as yet had caused no great suffering in Russia.

Please notice that when it was proposed to Abraham Lincoln to let the liquor-traffic, for the time being, supply the needed revenue for the war, he said, "I would rather lose my right hand than to sign a document that will perpetuate the liquor-traffic." And this is clearly explained and well understood; but I suppose his assassination prevented his carrying it out as he certainly would have done had he been permitted to live. Now, here is where the *guilt* of our nation comes in. Here is where *Achan* shows himself. From the time of Lincoln down to the present, no one has had the courage to break away from this national crime-breeding partnership. We men who cast our votes are to blame—every one of us. If we did not all know this we *might* all have known of it if we had informed

ourselves. Year after year the unholy alliance has continued. No wonder the author of this pamphlet says it has been a standing "shame and disgrace to the American people." Had Lincoln lived, no doubt he would have had the courage to issue an "emancipation proclamation" against the rum power, exactly as he did against human slavery, and thus might have saved the shame and disgrace that have been hanging over us for the past fifty years. Why did not the kind Father give us *another* Abraham Lincoln who was not *afraid* to face the giant? and shall we not unite in praying God that another Lincoln may come, and come speedily, to our rescue as a people and as a nation?

When the present war broke out there was trouble again. I believe I am not, as a rule, lacking in faith; but Satan kept crowding it on to me, and asking, "Is there *really* a God in Israel? If so, why does he permit this terrible wholesale slaughter of innocent people, including women and children, to go on?" and the war had gone on quite a spell before anybody even suggested that the Achan at the bottom was the liquor-traffic, and that Achan with his *wedge of gold* was the cause of the war, and that God would permit the war to go on as he did in old times until Achan would be pointed out and held up to the light of day—yes, held up to the scorn and indignation of every God-fearing man, woman, and child. Like Goliath, this giant had been parading before the dignitaries of the whole wide world. He kept saying, in the language of Boss Tweed, of former years, "What are you going to do about it?" and we were all afraid. No David appeared with his sling and pebble from the brook to smite him between the eyes. David said in his reply to the braggadocio, "Thou hast defied the armies of the living God;" and the Anti-saloon League, the W. C. T. U., the churches, the Sunday-schools, the Endeavor Societies, the Salvation Army, and good people the wide world over, can back me up when I say this Goliath, since the time of Lincoln, *has* "defied the armies of the living God." When we tried to cut off his sales on Sunday he grumbled and complained, and said we could not do it, and we did not do it. We passed laws, it is true; but this great Goliath managed to put in policemen who could not *see* the open sales on Sunday, even though there were hundreds of them in our great cities with hundreds and *thousands* of customers. He managed to get in policemen who favored his cause, and said, by way of excuse, that "the people" did not *want* the law enforced to the letter. Perhaps the

younger people who read these lines do not remember the notorious "nullification act" when the temperance forces had gotten a law that made a dead "open and shut" on the liquor-traffic, and had put on the lid, as it were, so there was seemingly no escape. Well, some "great men (?) " pretended *they* understood the law to mean what every *schoolboy* knew it did *not* mean. We let it pass because we could not (or *thought* we could not) help ourselves. The great Jehovah of former times seemed to have turned his face from us. *He* apparently did not see or did not hear; and we stupid mortals could not understand that he was just letting us go until we were *forced* to learn the lesson he was trying to teach us.

There is just *now* one ray of light coming; in fact, the extract I have made above indicates it. To the surprise of almost every good man and woman on the face of the earth, Russia—yes, poor stupid heathen Russia (as we were wont to call her here in the United States) all at once discovered that a *drunken nation* or a nation of drunkards is no match for a nation of sober people; and the Czar of Russia, without any preamble, and without consulting anybody, put on the lid, as we express it in the United States, and, without any warning, kicked out this liquor Achan with his shekels of *silver* and wedge of *gold*. He did not stop to argue about *revenue*; and, to the surprise of the liquor-soaked people of that great nation, they began to feel *better* and *happier* right away; in fact, like the poor demoniac who dwelt among the tombs, all at once they became "clothed and in their right mind."

Abundant figures have been given to show that if this reform keeps on for only a short time, more lives will be *saved* than have been lost in the war. It has been a terrible lesson to us all, God knows; but as you go back over the ground I have covered in this Home paper does it not seem probable that this terrible war was the only thing that *would* arouse our people and help them to consider the enormity of our guilt in permitting this thing to go on as we have done?

While I write, the United States is considering whether it will be safe to follow the example of Russia. The separate states, one after another, have taken it up and become "white" and clean at an unprecedented rate. In another place I have told you how Florida has just defeated the giant, and has come out in plain and unmistakable terms for freedom from the tyrant. Ohio

has just been defeated by trickery and fraud; but she is rising in her might, and bids fair to overthrow the giant before many months have passed. Are you, my friends, whose eyes rest on these pages, ready to show the courage of David in olden times, and declare as he did, "Thou hast defied the armies of the living God"?

"WHERE THIEVES BREAK THROUGH AND STEAL," ETC.

Mr. A. I. Root:—Greetings to you in Jesus' name. I am a regular reader of GLEANINGS and also a preacher beekeeper. Two years ago I took off a little over 2000 lbs., part extracted and part section honey, from 16 colonies, spring count, but last year the drouth hit us so that I got no surplus at all; and instead of the 22 colonies with which I started out in the spring I had only 12 left. Something happened to me last fall that was enough to make "even a preacher" feel a little cross. Some rascal of a beekeeper got into the place where I had my bees, and stole the three best colonies out of fifteen that I was getting ready for winter. They were two-story high, and weighed at least 100 lbs. each. That is worse than stealing honey. I offered a nice reward, but never got any trace of them.

I read with interest Our Homes and Health Notes in GLEANINGS. I see that you have trouble to get your hands clean after getting black auto grease on them. My boys are just now manufacturing a hand-cleaner that I believe will solve this problem for you much more pleasantly than you are now trying to solve it according to yours in GLEANINGS for March 15. I am sending you a 1-lb. 10-cent box to-day. Use it according to directions, and see how easily the grease can be removed from the hands. We are making it from our own formula, and it is the best thing out for such purposes.

My oldest son is now attending Western Union College at Lemars, Iowa, preparing himself for the ministry. The other two are still at home attending high school. What they make out of the soap proposition will be used to put them through school. If after a thorough test you can say a good word for this article I am sure it will be appreciated.

My bees came through the winter finely. When I set them out two weeks ago, several of the colonies had a few young bees hatched out, and every one of the twelve had patches of brood in from one to three frames. This is the first time I ever had hatching brood in the cellar.

Geneseo, Ill., April 1.

GEORGE A. WALTER.

The soap is certainly ahead of anything else I ever got hold of. When I am in a hurry it is certainly a great help. But what you say about thieves stealing your bees just to get the *honey* worries me. If, in answer to your reward offered, he should be caught and punished, the good to the world would not *compare* with getting him converted, say, by Billy Sunday or some "beekeeper preacher." "He that converteth a sinner from the error of his way, shall save a soul from death, and shall hide a multitude of sins." My good brother, have not you and others permitted *saloons* to flourish unhindered in your midst?

HIGH-PRESSURE GARDENING

EARLY OHIO POTATOES DOWN IN FLORIDA, ETC.

Up here in the North my favorite potato for years past has been the Early Ohio. A year ago I had trouble about getting seed. I finally got some for a big price, but it was poor seed at that. They were planted in our garden right under the irrigation-pipe, and made a magnificent growth; but potatoes had been grown in this garden for years past. Besides, it has been heavily manured with stable manure. We had a good yield; but they were the scabbiest lot of potatoes I think I ever saw. The garden was plowed before I returned from Florida, and was plowed when it was wet. The potatoes squeezed themselves into all sorts of shapes and among the lumps and clods; and after I got our overhead irrigation, as you may remember, the potatoes took a second growth. Mrs. Root suggested we should give them all to the pigs and chickens; but when we found the *quality* was so much better than any nice smooth potatoes we could buy, we finally decided to use them for the table, paring off the scab and the knobs that had started out with a second growth. Well, these Ohio potatoes, notwithstanding their forbidding looks outside, cooked up so dry and floury that we decided to take a peek with us to Florida. I think they were dug just before leaving, about Nov. 1. As we had other new potatoes, some of the Early Ohio, brought from Ohio, did not get used till January 1; and to our surprise some little sprouts had started; and Mrs. Root suggested that we plant them and see what the *Florida* crop would be. I cut them to one eye so as to make them go as far as possible. They came up very promptly; and from their great luxuriance they attracted the attention of visitors all winter, and along in April they were ready to dig. They made a slow growth because of the frequent cold rains; but it was one of my happy surprises to find the cleanest, smoothest, handsomest Early Ohio potatoes I ever got hold of.

Let me repeat what I have said several times. In Florida, at least in Manatee County, there is no such thing as potato bugs. They have not been "invented" there yet; and there is also no such thing as the flea-beetle that disfigures and eats holes through the potato leaves all over the North. And there is also no such thing as the potato scab—at least not the same kind of scab we have here in the North. I took a basketful of the potatoes up to our Bradentown groceries, and everybody who caught

a sight of them wanted them. The quality was quite equal to the looks. But there was one drawback. The largest ones were more or less hollow. I suppose this was owing to the rapid growth. I think that this can, perhaps, be corrected by planting them so close that they will not grow very large.

Now just one thing more and I am through with my potato story, for the time being. These Early Ohio potatoes were dug about the middle of April. We brought some of them with us; and just now, May 18, some of them show evidences that they are going to sprout; and I think I am warranted in saying we can dig potatoes here in the fall, carry them down to Florida, and by the first of January they will be ready to plant. Perhaps I should explain that they stood on a north porch—the coolest place we could find, through November and December. Well, the potatoes grown in Florida may also be brought north, and, if exposed to light and warmth, they will be ready to plant again in thirty days or more, thus getting two good crops in one year by moving them from the North to the South.

One thing more: The poor scabby potatoes grown here in the North, if planted in the loose soil in Florida, will give a nice clean crop. There may be some danger, it is true, of introducing the scab in the Florida soil; but if necessary the treatment with formalin would correct this.

Now just one thing more: A neighbor of mine said he had planted potatoes in Florida in September, and had a nice yield. Well, I have planted them from November 1 to along in February, and had a satisfactory yield; and I am told that potatoes planted in April often give good yields in Florida; and I think it quite likely, when we learn how, we can plant Irish potatoes in Florida every day in the year, and harvest them every day in the year, as we do with the dasheens.

MAKING TWO TREES GROW WHERE NONE GREW BEFORE; SOME GOOD NEWS IN REGARD TO JAPANESE CHESTNUTS.

Dasheens, no doubt, are all right; but don't you think a few words on trees and arbor culture occasionally would help a worthy cause? To make two trees grow where none grew before is a part of my mission in life.

If the old adage be true, that "he is a benefactor of his kind who causes two blades of grass to grow where but one grew before," what shall we say of him who causes two trees to grow where none grew before?

Some one has said it would pay any state to hire a forceful man to go up and down the same, and simply say to every man he meets, "Don't plant soft

maples," to which might be added, North Carolina poplars, and other quick-growing and short-lived trees.

The beekeeper should plant, for sturdy beauty, sweet bloom, and large yield of honey the European linden—a hardy tree, and a joy to look upon; also the American tulip-tree, miscalled the tulip poplar, fairly rich in honey, and it bears much pollen—one of our most majestic trees, and pure American—the only relative being a species in Japan.

And then when you think of the boys and girls, do not forget the nut-bearing trees, including a few of the Japanese chestnuts, which are not affected by the blight, which is rapidly destroying the chestnut groves in this part of the country.

For decorative and formal effects plant the "gingko," the sacred tree of India and Japan. This is a rapid grower, known also as the "maiden-hair," because of the shape of its leaves. To my knowledge it thrives perfectly as far north as Newburgh, N. Y. For the same purpose the bald cypress should not be overlooked.

Now, brother farmers and bee-lovers, get busy and adorn that long lane or stretch of road, in which you are interested, with trees, and future generations will rise up and call you at least a lover of your kind.

C. H. GUBBINS.

Philadelphia, May 7.

The single statement in the above, that Japanese chestnuts are not affected by the terrible blight that threatens to destroy the American chestnut, is indeed good news if true. Will those who know something about it please give us further information? In years past I have mentioned my fondness for chestnuts, and I want to say now that I have enjoyed them after I have finished both breakfast and dinner, almost continuously since the new crop came in last fall. Just as soon as I get a lot of chestnuts they are put into an oven and roasted enough to destroy the chestnut weevil. This generally also prevents any tendency to mold in such a climate as that of Florida. But to make sure against mold as well as the weevil, we give them another roasting some time during the winter. With this protection I think I can have them almost if not quite all the year. In fact, I have a few now, May 11. Some of you may object because they are hard on the teeth. Well, I have a dentist, at least once a year, or oftener, look after my teeth, and see that they are in good trim. I have not had the toothache for years, and do not expect to have it. Well, when I get up from the table to go over the garden or out among the poultry, I put a handful of chestnuts in my left-hand coat pocket; and, no matter how hard they are, by taking time I can chew them until they are just a delicious creamy mass in my mouth, as Terry, Fletcher, and others have described, and in this way I greatly enjoy them. I am sure they are very healthful. Of course so much chewing calls forth an extra supply of saliva. Notwithstanding the blight last season, the price of chestnuts went away down in the Cleveland markets;

in fact, there was almost a "glut" at one time, in chestnuts. I bought a couple of quarts when first on the market, and then, later, put in a full supply for winter. I have planted a good many chestnut-trees already; but if what is said above in regard to the Japanese chestnut is true I intend to plant more; and this reminds me that I have both chestnut and pecan trees in bloom in our Florida garden for the first time this spring.

DASHEEN TUBERS ACROSS THE GREAT WATER NOT A FAILURE AFTER ALL.

It seems it is not a very difficult matter to send tubers, if properly seasoned and packed, to foreign nations after all. See the following letter from one of our missionary friends:

AMERICAN BOARD MISSION IN SOUTH AFRICA.
RHODESIA BRANCH.

Dear Friend, Mr. Root:—In response to your suggestion in GLEANINGS for Jan. 1, 1915, p. 41, that I let you know how I packed the amadumbe or dasheen tubers that I sent you, I will say that I too am forgetful, and cannot feel quite sure that I remember; but I think it was like this: I chose very small tubers (I think they had been dug some time), and wrapped each in enough paper so that several thicknesses, say five or six, should separate them from each other when packed. Then I packed them in a pasteboard box lined with corrugated pasteboard such as Burroughs, Wellcome & Co. place their bottles of talaids in, and then wrapped this in paper.

I may remind you that you also succeeded, at least once, in sending dasheen tubers across the seas, for you sent some to me which arrived in fine condition, and their offspring are now doing well in my garden. So far I fail to see any difference between those that you sent to me and those that I sent to you; but we have not compared them very thoroughly, perhaps, as yet.

I am interested in what you say of cassava, Jan. 15, 1915. I have ten varieties of manioc growing in my garden. I wonder if any of them are identical with your cassava. Some of mine are sweet and some very bitter.

W. L. THOMPSON.

Mount Silinda, Melssetter, S. Rhodesia, March 17.

The amadumbe mentioned is growing finely in our Florida garden; and while it looks a little different from the Trinidad dasheen, the tubers when baked are substantially the same thing. Right near the South African dasheens is a queer-looking plant sent by a missionary from South America. It always attracts the attention of visitors because of its rapid growth and queerly mottled leaves. The manioc cuttings were received, and planted in our Florida garden. While we are considering the cassava and its value as a food product the following letter may prove to be of value.

CASSAVA HONEY, ETC., IN PARAGUAY, SOUTH AMERICA.

Dear Mr. Root:—When I read your remarks in GLEANINGS for January 15 on cassava as a food it occurred to me that you might be interested to hear about the ways in which that plant is used in Paraguay. The cassava (or, as it is called in this

country, "mandioca") is the staple food of the Paraguayan, whether he be Indian or mixed Indo-Spanish, and is, consequently, extensively grown all over the country. Of it the native makes his bread, his tapioca, and his starch, and on it he feeds his horses, cattle, pigs, and poultry, and even his dogs and cats. The ordinary method of cooking mandioca is to boil it after carefully removing all the thick peel; and so cooked it is a perfect substitute for the potato when eaten with any kind of meat. It can also be baked or roasted, as you describe, without peeling; and when peeled, cut in thin slices, and fried in deep fat, it is just as good as potato chips. Cold boiled mandioca also, cut up and fried, is delicious—much more so than potatoes so cooked—at least my husband and I think so now after five years' experience. You say that the plant you tested was of two years' growth. Here it is seldom left longer than one year, as after that time it does not cook soft and mealy, but assumes a waxy or soapy consistency after boiling. If you wish to taste mandioca at its best you should dig up some that has been planted only one year. I think perhaps even Mr. Root would admit that it was at least equal to potato then. It should be peeled carefully, washed, and put into boiling water with salt, and boiled for 20 to 30 minutes. As soon as it is cooked the water must be strained off and the vegetable allowed to dry. The water it is boiled in must be thrown away, as it is said to contain a strong solution of prussic acid. I do not know if this is true, but I have no wish to test it practically. Of the many other ways in which mandioca is cooked here I will give you one or two which I have tried myself.

1. Peel and wash the mandioca; cut it into pieces of a size to go easily into the meat-mincer, and grind it as fine as possible, first placing a cup or bowl under the handle end of the machine to catch the milky juice which comes out freely as the vegetable is ground. After grinding, unscrew the machine from the table without taking apart, and add the liquid still remaining in it to that in the bowl. If this is allowed to stand for a few minutes the starch (which is really *tapioca*) will be found to be precipitated with a clear yellowish water on the top. This water should be thrown off and fresh poured on, stirring up well, and again allowing the mixture to settle. In a few minutes more this water also can be thrown off, leaving the white starch, which may either be dried by evaporation in the sun, but *not* on the stove, as this turns it to a kind of gelatinous substance, or used at once as follows: To two tablespoonfuls of the wet starch add enough cold milk to mix to a thin paste, putting the remainder of one pint of milk on to boil, with a little salt, and sugar to taste. When boiling, pour in the starch and boil until it thickens, stirring all the time. When thick enough, take it off the fire and add a beaten egg. Pour into a deep pie-dish or shallow bowl and bake until done. This is very nice with fruit pies and puddings, stewed fruit, jam, or even by itself.

2. To make a tapioca pudding the starch must be quite dry and powdery. Boil the milk in a saucepan, with a little salt, and sugar to taste, and when boiling sprinkle in the starch slowly, from the hand, stirring all the time. When the tapioca is transparent take it off the fire, add one or two beaten eggs, pour all into a deep dish, and bake till nicely browned on top. Of course one can add any flavoring to either of these before baking.

Of the mandioca that has passed through the mincer, very nice fritters can be made in the same way as those of raw grated potato, adding sufficient well-beaten eggs to make them nice and light. Flour may also be added at discretion. But the principal use to which I have put this "afrecho," as it is called here, is to make bread of it.

3. Flour, owing to several causes, has been very expensive for many months, thus raising the price of bread; and as we eat a good deal of bread it

became necessary to find some material which would "reduce the cost of living." So I experimented with this afrecho, with flour in various proportions, and found it very satisfactory, if mixed in the proportion of 3 to 1—i. e., $\frac{3}{4}$ lb. of flour to $\frac{1}{4}$ lb. of mandioca. This is for baking-powder, or sour-milk-and-soda bread. I do not use yeast at all. I have also mixed maize meal with the above, using $\frac{1}{2}$ lb. flour and $\frac{1}{4}$ lb. each of the other ingredients. Proceed as in ordinary biscuit-making, and bake either in small cakes or in a loaf. The latter requires one hour to bake. Cold cooked mandioca, well mashed, can also be used to make "scones" in the same manner as cold potatoes are used. It can be ground in the mincer; but before doing so the stringy substance in the center must be removed.

In a former number of GLEANINGS you mentioned the fact of Mr. and Mrs. Terry using a gallon and a half of honey in a year, implying that this was a record. What will you say when I tell you that my husband and I (and our cat) eat *thirty* gallons of honey in one year? I mention the cat because it is ravenous for honey, eating mouthfuls of bread and honey "turn about" with my husband. It sits beside him, sharing his chair; and if he neglects to give it some as soon as he has reached that stage of the meal, it bites his hand gently, or puts out a paw to intercept the coveted sweet on its way to its master's mouth. If these methods fail it jumps on to his shoulder and proceeds to lick his hair, holding the head steady meanwhile with its claws, and this performance always results in a big piece of bread and honey being given to the spoiled animal. We have no children, so that the example does no harm, and only amuses us.

We use honey as a substitute for sugar in nearly everything, even in tea and coffee, and in jams, jellies, and marmalade, in all of which it is very satisfactory. I have also used it in frying meat and vegetables. It gives them a delicious flavor, if too much is not used. A tablespoonful is quite enough, as a rule.

I may add that I enjoy reading GLEANINGS as much as my husband does, though I have nothing at all to do with the bees; and I always read Our Homes and hope you will be spared to write that part for many years to come.

GERTRUDE M. BROWN.

Villarica, Paraguay, March 27.

The cassava grown in Florida is one of the easiest plants to grow I have ever gotten hold of. Along in February or March we cut the canes in pieces about as large as corn-cobs. These are bedded close together like sweet potatoes. When warm weather comes in April almost every cutting will make a nice little plant if grown in good soil. These are then planted out four feet apart each way; and with very little care they will crowd out the weeds and everything else; and they make a very fair growth on the Florida sand without any fertilizer; but of course they do better on well-worked fertile ground. On page 85 I made mention of a root as long as my leg and nearly as big; but this was the growth of two winters. We cooked some of this big root, but did not see but it was just as good as the little tubers say a foot or two long and an inch or two in diameter. We now have a vegetable-cutter for grinding the roots for poultry. It came from Sears,

Roebuck & Co., and cost only \$3.40. The chickens take it a little more readily in this shape—especially the smaller ones. The ground roots can be easily chopped up with middlings so as to make a mash.

“JABOTI CABA,” A NEW SEMI-TROPICAL FRUIT FROM BRAZIL.

Last fall one of our California friends wrote me about a wonderful new fruit that they were just then introducing in California. He said the price then was pretty high, but it promised to be something of great value. Not long afterward I saw a description and photograph of the tree in an issue of the *Technical World*. Its peculiarity that distinguished it from all the rest of the trees of the world is that the fruit, instead of being borne on the end of the branches, is on the trunk and branches like a cluster of grapes. The tree grows to a height of forty feet or more, and commences to bear when about the size of a common currant bush. In order to get information at first hand I wrote to the Department of Agriculture, Washington. In response they sent me two little trees. Below is the printed matter that we copy from the label attached.

Myrciaria Cauliflora. . . Jaboti caba.—From Rio de Janeiro, Brazil. Collected by Dorsett, Shamel, and Popenoe. Remarkable fruit-tree 40 feet high. Popular among Brazilians. Maroon-purple, thick-skinned fruits resembling grapes with delicious, vinous, white pulp, borne on trunk, branches, and twigs in such numbers as at times almost to conceal them. May stand light frosts.

On the opposite side of the label it reads as follows:

This plant is entrusted to your care for experimental purposes. The Department wishes your assistance in determining its possible value.

You may be sure I regard these two little trees as a prize. They were sent by mail with soil attached like a potted plant. For quite a time they did not seem to make any growth, and I began to be worried about them. Finally some tiny pinkish leaves appeared on the under side of the branches, clear out of sight, and they grew pretty well until we had a prolonged drouth for something like a month. When I left my Florida garden, about May 1, I feared they would die in spite of the careful watering I was giving them. Watering is all right if applied judiciously; but it does not take the place, especially in the South, of cloudy weather and gentle rains to make things grow. You may imagine how it rejoiced my heart when I got the following letter from our friend Wesley:

Mr. Root:—We had a fine rain on the 9th of May. It rained all day and night, and since then it has

been raining; the ground is good and wet, and in fine condition.

The jaboti caba is just as pretty as can be, and just as green as grass. They are beautiful.

I've got a job with Mr. Seller in the tomato-field. The chickens, ducks, and everything are getting along finely. The cactus that you paid \$1.75 for has two buds, and the other has from four to five leaves. Manatee, Fla., May 14. WESLEY WELCH.

Later.—I have just received a letter, dated May 17, from my near neighbor, M. C. L. Harrison, who says, “The feterita is heading, and looks fine.”

ANOTHER GREAT AND GOOD MAN GONE.

We make two clippings from the *Rural New-Yorker*, just at hand, as below:

DEATH OF PROF. VAN DEMAN.

Professor Henry E. Van Deman, well known to readers of *The Rural New-Yorker* as a frequent and valued contributor, died at his home, Washington, D. C., April 28. He was born at Concord, Ohio, his early life being spent upon his father's farm, where he gained his first knowledge of fruit-growing, both his father and grandfather being practical orchardists. Professor Van Deman excelled as a judge and student of varieties. He knew fruit as few other men do. What the opinion of a justice of the Supreme Court meant at law, a decision by Van Deman meant at a fruit show.

Later.—We clip the following from the *Nut-grower* for May in regard to Professor Van Deman:

Professor Van Deman was a native of Ohio. He served through the civil war with the volunteer troops of that state. His services as a judge in fruit exhibitions were greatly in demand, and his work along this line covered nearly every state in the Union. He served for a number of years as Chief of the Division of Pomology.

For many years past, when reading an article in regard to the progress of fruit, horticulture, etc., I have been in the habit of looking to see if I could find who the writer was, and what was his authority. Whenever I have found the name of H. E. Van Deman I have always felt sure the article was sound and reliable, and no doubt others have felt the same way. I have not been able to learn as yet what his age was when death stopped his work; but I think he must have been somewhere in the 70's.

About a year ago I read with great interest an article in the *Rural New-Yorker* from Prof. Van Deman in regard to the possibilities of the papaya. Among other things I think it stated that some specimens had borne fruit inside of a year from the time the seed was planted. I cut out the article and submitted it to my good friend Reasoner, of Oneco, Florida. He replied that there was no question but that the statements were exactly true, coming from such good authority; and I have the promise of some of the improved varieties as soon as they can be had. The trouble with the papaya

is that the seed may or may not produce fruit like the parent; and until quite recently no one has been able to disseminate the improved varieties by grafting. Professor Van Deman, however, informed us that it was then being done satisfactorily at the Government station in Miami, Fla.

The picture on page 400, May 15, was from a seedling that just *happened* to produce that sample of large, beautiful, luscious fruit.

GOOD NEWS FROM FLORIDA; "GOD'S KINGDOM COMING."

While a boy in my teens I studied geometry, and to get some practical as well as theoretical knowledge of surveying I went around several days with our county surveyor, good old Zacary Deane. I distinctly remember a little story he told me of a certain people somewhere that never seemed to know when they were whipped. He said they were so stupid that *they kept right on fighting*, and by and by licked the other party. The experience of the Anti-saloon League down in Florida brings the matter to mind. During the past winter we tried to make the great city of Tampa dry; but the big giants (the liquor party) whipped us once more, and, as the world looked at it, disastrously. But my good friend C. W. Crooke was like the people in the story—he did not seem to know he was whipped, or forgot it, for he went right on with the fight, and finally the Davis bill "won out." It is too long to give it a place here in full: but the following, clipped from a letter just received, covers the ground pretty well:

The liquor men of Florida are *stunned*.

The saloon must die September 30.

There will be left only liquor-stores selling in sealed packages.

Profits will be cut so small that 200 of the 291 saloons will die.

County-option elections will likely kill the other 91. The Davis bill (enclosed) passed by 2 to 1 in both Houses.

The liquor lobby cannot live under the Davis bill.

The Tallahassee *Democrat* says: "The cause of prohibition and good government are immensely indebted to C. W. Crooke for his effective work during the present session of the legislature."

Hon. D. C. McMullen writes: "I wish to commend the work done by the Anti-saloon League, and by yourself in particular, in passing the Davis bill, which I believe will effectually break the power of the liquor traffic forever in Florida."

Florida *Metropolis* says: "Open saloons in Florida will be abolished five months from Friday."

Tampa *Tribune* says: "If enforced, the Davis bill means state prohibition."

The *Times-Union* says: "The Prohibitionists have won out at this session. The Davis bill went through like a flash."

C. W. CROOKE,

State Superintendent Anti-saloon League.

Jacksonville, Fla., May 1.

HARRIS W. JENNINGS, SPRINGDALE, CT.—
LOOK OUT FOR HIM.

I clip the following from the *Rural New-Yorker*:

I see under the heading of Publisher's Desk of November 28 that W. K. R. is another victim of Harris W. Jennings, Springdale, Ct. I received an earnest quick order for 50 complete Langstroth hives. He seemed so honest and sincere I trusted him. Well, to this day I have not heard from him. What do you think can be done? He is the first man I ever dealt with who proved dishonest. I have learned my lesson. W. K. R. is fortunate that he lost only \$5.

H. J. G.

New York.

Nothing can be done except, perhaps, a lawsuit, but the amounts involved are not large enough for that expense. The attention of the Postoffice Department should be called to the matter.

On asking our manager if he knew anything about the man, I was informed that the A. I. Root Co. is out over one hundred dollars by this same Harris. I hope it is true there are *few* such cases among beekeepers. And this gives me the opportunity to say that if any of our readers have lost any money by those advertising queens, bee-supplies, or anything else in our line, if they will give a brief account of the transaction, and direct it to A. I. Root personally, I will do all I can to help you get your money. If nothing can be done, the person should have his name in print so others may not be robbed of their hard earnings in a like manner.

"A CORNER IN HONEY."

On page 414 of our issue for May 15 our readers may have noticed something that looks like "a pretty big yarn." As soon as I saw it I made investigation, and called for the letter written by friend Muckle. In giving the date, 1914, his figures were so indistinct that a mistake was made. Very likely he meant to say 1913; but even if he had a whole year his record was a wonderful achievement. I have written him, and he will doubtless give us the full facts in regard to the matter.

A KIND WORD FROM THE MOTHER OF A FAMILY OF FOURTEEN.

I cannot give up that paper. Everything is good in it. I wish everything Billy Sunday says could be in every paper. I like to read it. A. I. R. does much good by his writing about how to live long and be happy while we do live. Everything he hears he writes about to help others. My family of 14 like his writing.

Wanatah, Ind.

MRS. S. P. HOWELL.

DASHEENS MAILED TO NEW ZEALAND RECEIVED IN GOOD ORDER.

Very many thanks for dasheens, which arrived in perfect order, one actually starting to grow. I wish you every success.

STEPHEN ANTHONY.

Coromandel, N. Z., April 7.